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FRATERNA

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Hoya picta Miquel

Foliage photo by Betsy Justice

International Hoya Association

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Back Cover Hoya variegata cv. Krimson Queen

Our Cover Story

The Variegated Hoyas

Most of these variegated hoya plants are as unpredictable in their foliage markings as are the flowers in a package of flower seeds. This particular plant on the cover with the yellow or cream center has been known to have at least 30 different names and more names being added by the growers with every change in the leaves. New leaf growth is often a wine-rose color or even vibrant mahogany but can also sprout an all cream colored or solid green leaf. For the most part, they have beautifully variegated foliage and for that reason make stunning indoor plants that usually look good even in subdued light.

If any stray shoots should arise with all cream or solid green leaves, it is advised that these shoots be cut off. As a rule, these solid cream colored leaves lack sufficient chlorophyll and so are extremely weak and subject to an early death. Just the opposite is true of solid green leaves. The all green stem will produce more food and as a result of all the chlorophyll it will outgrow the variegated portion. It will soon dominate the plant and a once beautiful variegated plant will revert to solid green.

Most growers are under the impression that this and some other variegated hoyas are in the H. carnosa complex and the flowers are very similar, however Miquel published this hoya as a species in its own right, and we do find variegated specimens in many other species.

Whether this or any of the variegated hoyas are distinct species or just arose as mutations is a matter of personal opinion. We could study them from now until forever and they would probably still crop up with fancy names at every leaf pattern change.

The culture for these variegated hoyas are pretty much the same as for other hoyas. I haven't found that they are any more prone to pests than any other hoya, they do require an abundance of light in order to hold their beautiful variegation. If they are natural mutations that have arisen from a known species they will normally be found growing in the warm, tropical areas of S.E. Asia, Though many of them crop up in batches of seed grown plants, a few may even mutate in large nurseries where thousands of cuttings are planted for the houseplant trade. Many of these types are usually not stable and often lose their variegation.

The flower production of many of these variegated plants are sporadic or sometimes non-existant. Thankfully the colorful foliage is what we are after when we acquire these plants and most of us don't give a hoot whether they ever bloom. When they do produce flowers it's usually because they have the correct amount of light and humidity and it is the one group of plants that I highly recommend Eleanor's V-F 11 fertilizer used as a foliar spray. It tends to help keep the variegation stable, and boosts the flower production. Don't forget the light, they love and thrive on very bright indirect light but can also sunburn very easily if the light is too intense.

Keep the potting medium loose and fast draining as with all tropicals and never let them dry out to a point of wrinkled leathry leaves.

The next few pages display a few very pretty variegated hoyas.

Ann Wayman

Top:: Hoya variegata *Siebold*

Bottom: Hoya latifolia variegated

Top: Hoya kerrii "Chanrit's Choice"

Bottom: Hoya kerrii "Albomarginata"

Top: Hoya verticillata variegated "green center"

Bottom: Hoya verticillata variegated "white center

Top: Hoya australis "Lisa"

Bottom: Hoya australis variegated green center

I have not seen either of these H. australis ccultivars bloom.

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Regarding Hoya Addiction

There have been events in my life of such significance, that I've never forgotten where I was, nor what I was doing during those times. Such was my first encounter with a hoya; 53 years ago. At the time, I had no idea what the plant was, but seeing it was truly a milestone for me even as a six year old child.

I was standing outside of my future piano teacher's white picket fence enjoying the sounds of music coming from the house, when I became aware of a beautiful thick-leaved plant hedge sporting clusters of flowers such as I never imagined existed. The light pink petals were surely made of velvet, the crown, waxy, exquisite and dripping with nectar was a perfect contrast. It was love at first sight! long ago and far away, in San Miguel, Buenos Aires, Argentina.

Yes, I now know that these Asclepiads are not native to the Americas but they are loved and cultivated by people even as far away as Argentina. Of course I learned about hoyas years later and continue to learn more every day. My interest in Botany started when I could pick wild flowers for my mother at age two or three. That interest has never diminished!

Two years after my parents brought my siblings and me to the United States, I saw a second hedge of Hoya carnosa at Seal Beach, California, where my future husband's wonderful grandmother lived. That hedge was huge and very old. Unfortunately, I was too shy to ask for a cutting! In case you wonder, I'm no longer shy when it comes to asking for plant cuttings; though my husband keeps telling me he hopes I won't get shot or arrested for my boldness.

After we were married in 1969, my husband gave me a gorgeous Hoya picta, growing in a big hanging pot which it filled. Later on while we were living in British Columbia, Canada, he gave me a beautiful Hoya carnosa. For this I decided he was a keeper! I was not wrong, as proven by forty years of wedded bliss.

A problem arose when we had to come back to the states! After working in Christian ministry in Canada for ten years, I had acquired too many plants but was unwilling to leave them behind. You know how that is. Those beauties became part of the family, so we had to have Canadian inspectors come to our home to check all our plants and give us a health certificate, before U.S. border officials would allow us to cross with our plants. Our moving van was bulging with plants! We moved our family and our plants to Southern California where we lived for several years before finally settling in gorgeous Oregon, four years later.

I had forgotten how many people I shared hoya cuttings with until recently, when someone sent me some cuttings from the ones I had given them more than thirty years ago. The mother plant, I was informed, was huge and thriving out doors in Southern California.

It was after we settled in the Columbia River Gorge in Oregon, that I happily found Ruth Grenier's name on a plant tag at a nursery, and called her. She invited me over and showed me a whole world of hoyas. Ruth and I became instant friends and she's very dear to me. Unfortunately I have to blame her for not warning me about the addictive nature of hoya collecting. She allowed me to get bitten by the hoya bug irrespective of my already weakened condition. Ruth introduced me to species I didn't know existed such as H. linearis, H. serpens, H. lacunosa, H. kerrii and many others. The damage was irreversible, but "oh what joy"

continued

During one of my visits, Ruth mentioned the IHA, the Fraterna magazine and Ann Wayman all in the same breath, so I became a member of the IHA (International Hoya Association) and met Ann over the phone, gaining another friend, mentor and supplier of some more wonderful hoya cuttings.

When I call Ruth, she answers by saying "Argentina" She tells me she recognizes me from my accent. From Ruth Grenier and Ann Wayman I have learned much, been given instructions on growing some of creation's most interesting plants and acquired lots of their cuttings. Thank You ladies for sharing with me your vast knowledge of your world of hoyas!

I now have a small collection of about eighty species of hoya, all of which are being grown under Cromalux Full Spectrum lights and in window sills. Living on the north side of 4,000 foot cliffs in the Gorge poses a problem with light availability for plants and humans. However, I enjoy the challenge of finding just the right spot for each plant. Even though many of the plants are young, they are growing well and some, supposedly hard to bloom species, are blooming for me. Which is another story altogether.

No greenhouse yet, but we're thinking of a lean-to type that would be incorporated into our living space. My husband being a contractor now and being the first person to get me hooked on hoyas, I don't doubt that I'll have that greenhouse one day soon. It had better be sooner than later or we'll need machetes to get through the front door.

Finally, I must confess that I've also caused unsuspecting victims to get bitten by the hoya bug without warning them. But then, I have a couple of really excellent teachers. Don't you agree?

By Eva Miles

The Columbia River Gorge

I met Eva, and her husband Ken in person this past summer. We had a wonderful but short visit as they were on their way to California. They did however return a week later for a longer visit and to pick up some plants and cuttings. We had a very interesting conversation about the area of Oregon that they finally settled in.

Almost all of our state is truly beautiful with a gorgeous coastline, fantastic mountain peaks, lush green valley's, and, yes we even have desert conditions in some areas. Inland from the coast (where I live) has very mild weather, with about 25 inches of rain per year and very seldom has freezing temperatures. The coast and Mt. areas are a different story altogether. The coastal areas have been known to receive 150 inches or more of rain a year and the mountains are normally covered with snow about 9 months of the year.

Several years ago, I purchased a book of photos of some of the spectacular scenery of the rivers and mountains of Oregon. Unfortunately I couldn't get permission for the right to reproduce some of them. I'm hoping that someday one or a dozen of our members will pay a visit to scenic Oregon and take lots of photos to share with our members.

I sincerely thank Eva for sharing her adventure into hoya growing with all of us. Please remember that there is always an invitation for our members to share their adventures and misadventures with us. We need stories and we need photos. This is a member sharing organization, not just an entertainment magazine.

Without participation from our members, this organization will eventually cease to exist.

Thank You

Ann Wayman

PHOTO GALLERY DESCRIPTIONS

Top Left

H. pentaphlebia *Merrill*...Philippines. The glabrous flower clusters of this species are made up of 25-35 very waxy textured, yellow star shaped flowers. The edges of the petal lobes as well as the tips turn under, yielding a spoke like flower. The yellow corolla is slightly reflexed and sets off the raised, star shaped white center. It blooms from early spring through October..(Photo by Christina Karlsson).

Center Left

H. juannguoiana *Kloppenburg.*

Pronounced Ju-ann- gwo- iana. Another exceptional Philippine hoya. This hoya is without a doubt, one of the best. It has beautiful foliage, is easy to grow, easy to bring into flowerand seldom has bugs of any kind. It is compact and makes a nice basket plant. The flower petals are pearly white or sometimes a very pale beige with dark mahogony colored petal tips. The delicate fragrance of these flowers makes it a real winner. (Photo by Ann Wayman)

Bottom Left

H. latifolia..*Don*...I purchased this plant about 25 years ago with the name of polystachya on the label. I have since came to the conclusion that this plant is very probably akin to the H. latifolia/H. macrophylla species. The flowers are a little different in their structure but so similar that I don't see a reason for calling it other than H. latifolia. The flowers are very tiny and exquisitly beautiful, beige with brown petal tips and white coronas..... (Photo by Ann Wayman)

Top Right

H. dischorensis *Schlechter*...This species is from Papua New Guinea. It requires lots of light for the foliage to look good and flower to the best of its ability. When it's happy, it blooms often and profusely with fuzzy edged, brownish yellow flowers. It doesn't appear to have any fragrance that I can detect... (Photo by Ann Wayman)

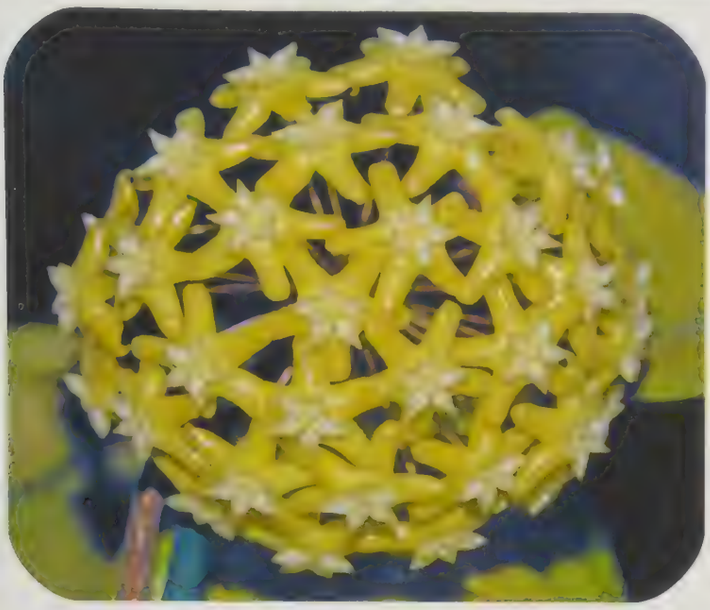
Center Right

H. patella *Schlechter*..A gorgeous species from Papua, New Guinea, with emerald green, pubescent leaves. The flowers are huge but instead of forming in umbels, there is usually only 1 flower at the end of a flower stem. I have seen pink flowers and pure white flowers, both with bright red corona. They prefer the temperature a little on the cool side but are certainly worth the effort of growing them. They are reliable bloomers and photograph beautifully. ...(Photo by Rosita Petersson).

Bottom Right

H. megalantha *Turrill*...Then there is this beautiful and elusive species from Fiji that Ted Green has been chasing for many years of his life..finally caught it!. WOW! what a beauty! The leaves and stems of this species are rather thin but as you can see, the flowers are the main attraction of this gorgeous species. The rich pink, purple, mauve, cup shaped flowers are close to an inch in size and extremely waxy in texture. The corona is beige or brownish yellow in color. I can't even make a guess yet as to whether this is a good bloomer or not, I lost my plant during the winter but will be replacing it as soon as the weather warms up... (Photo by Ted Green)

HOYA PHOTO GALLERY



Those Falling Leaves

Falling leaves can be yellow, they can be brown, they can be dry and wrinkled, or slimy and mushy. Whichever way they appear, it is invariably a sign of a sick plant. There are exceptions to the rule, such as the natural aging of a plant, however for this discussion we will concentrate on plants in our care that are suffering from human intervention. The major cause of sick looking yellow plants is "overwatering", "underwatering" "low humidity", and/or "lack of sufficient light". When these ingredient's "gang up" and attack our plants, it's a wonder that any survive.

How do we diagnose what is wrong with our plants when the leaves start falling like rain or the entire plant collapses practically overnight? It's time to put on our plant doctor coat and start an examination.

Remembering always that a plants roots are its feet and much like we humans, when our feet hurt, we hurt all over. So, first on the agenda is to tip the plant out of the pot and look for the mushiness of the root ends that indicates root rot. If none exists, repot the plant in a fresh pot with a very fast draining potting mix one size smaller than the previous one. Alter your watering practice so that your plant receives water only after it has dried to a point slightly past the moist stage but never completely dry.

Underwatering has its pitfalls that are just as devestating to hoyas as a hand too heavy with the watering can. The difference with an underwatered plant is also in the appearance of the roots, mainly, that instead of looking slimey or mushy, they are usually dry, crinkled and the soil around the root ball falls away as lumps of hard compacted soil. This condition isn't always due to not watering often enough but in that the water doesn't have the ability to drain through the potting mix but instead, the mix is so dense that the water runs down the sides of the pot and out the drainage holes without ever getting to the plant roots. The first thing to do is get some water to the roots and hope that they still have enough life left to survive a good soaking. Water from the bottom in a deep dish filled with warm water. If the plant perks up in a few days and the leaves lose the dry crinkled look it will probably be safe to repot within a week or two. Use a clean pot with a fast draining potting mix and lots of course material added for drainage.

Low humidity is another killer of plants. Not only do the leaves suffer from dry air, but insect pests normally attack plants that are suffering from less than ideal conditions. Spider mites are the main offender of plants suffering from low humidity but mealybug, scale and even aphid will take advantage of a sick plant. The cure for low humidity is fairly simple for plants growing in a greenhouse. A hose with a fog nozzle and a light misting over the tops of the plants two or three times a day or an automatic mist system should keep the humidity at a reasonable level. Inside of our homes where most of us grow our hoyas is a bit of a challenge. There are plant stands that have 4 or 5 inch deep trays that can be filled half full with pebbles, marbles or even sphagnum moss and kept wet and the plants sit on trays suspended over the water laden lower tray. The plants can also be misted with a hand held spray bottle 2 or 3 times a day. If we are growing our plants in a main room of the house, such as in a big window or a recreation room where water being sprayed around can ruin tables, floors and our window sills, its probably best to use the old "lots of plants grouped together on a pebble filled tray" method. Keep an inch or so of water in the botton of the tray and check it often.

Lack of sufficient light is the slowest of plant killing methods but a killer just the same.

Thankfully with the advent of artificial plant lights of many different kinds for many different conditions, we can now grow plants anywhere that we have an electric outlet.

The problem with lighting is trying to convince hobby growers that their lighting is sufficient. Many people have the notion that if they can see well to read or do the many other things that we do in our homes, that the lighting is enough for the plants. Hoyas are normally very forgiving plants and can struggle along for many months and often several years, however they seldom bloom under less than optimal conditions and usually look pretty sad after awhile.

If you have a big window that faces east, place your plants as close to the window as possible without touching it. They will love the early morning sun, and the foliage will grow lush and colorful. If you have a window that faces south-east, you may have to shade your window from about 11:00am to 2:00pm but you will almost surely see flowers form and bloom. It is the light that is the life blood of all plant life and without sufficient light, all plant life would die. I don't normally recommend placing hoyas in a bright, west facing window during the summer months as the afternoon sun is usually too intense, however even a west window can be used if you have a sheer curtain that can be pulled shut during the hottest part of the day to shade the plants from the afternoon heat and to keep them from being sunburned.

Plant food was not mentioned in the 4 major causes of plant failure at the start of this article. It is, however a very important part of plant success. Plant food is kind of a misnomer in that plants make their own food from the nutrients that they get from the soil and from water and the light that nature furnishes for them. Our role is to furnish them with the ingredients that they lack when taken out of their natural environment and are deprived of these ingredients that they need to manufacture this food.

There are many types of plant food on the market and all advertise that they are the best for what ails your plants, however, flowering plants don't require an abundance of nitrogen and foliage plants don't do well with a high phosphorous and potassium formula. The ideal, all around plant food for all kinds of plants (except acid loving plants) is a balanced fertilizer of equal parts of the 3 main elements of nitrogen, phosphorous and potassium plus micro-nutrients.

Newly potted plants have enough nutrients in the fresh potting mix to last for 5 to 6 weeks. After that you can start a regular feeding routine. I find that fertilizing at half strength of the dosage listed on the directions for a particular brand at every watering works better than a stronger dose given at longer intervals. Always watch for signs of fertilizer overdose and water with an abundance of plain water about every 4th or 5th watering.

These listed requirements for plant care are all fairly basic. If we were to get into specifics of all the things that could go wrong with many types of tropical plants, we would need a very large "How To" book. Fortunately with hoyas we seldom have any really major catastrophe's.

If any of you need a specialized diagnosis of a particular hoya problem, please write to the e-mail address hoochymama007@hotmail.com I will forward your request to one of our plant doctors.

Ann Wayman

ODDS-N-ENDS

Dear Fraterna members;

I have received notice from Torill Nyhuus, editor of a Swedish Hoya publication, that much of the 4th quarter 2008 Fraterna "New Species" publications are in error. Since I copy and paste everything that I receive from others for publication in Fraterna, specifically so that there are no errors on my part, I will be publishing the corrections that I received in exactly the same manner that I received them, so there will be no chance of error in the corrections.

As for H. flagellata, this species was not intended to be a publication of a new species, it was my cover photo and merely Dale Kloppenburg's accessment of the preserved flowers that I sent for examination. There is no Latin language publication which would be required if it were a publication of a new species.

"Dear Ann, and the rest of the board of IHA.

I've received Fraterna 21 #4 a few days ago.

Unfortunately, this is the worst mess I ever have seen! If you can't make better bulletins, please stop making them!!
Why can't all of you ask for a PDF-version of the bulletin, before printing it, for proof-reading and spell-checking?

1. *Hoya flagellata* was sunk into synonymy with *H. caudata* by Rintz in 1978. I assume all of us agree that this shouldn't have been done. But until they're scientifically separate species again, it remains synonymous to *H. caudata*. This article was actually a good opportunity to separate them, but Rintz's publication was not even mentioned in the text. The original line drawing by Rintz was named *H. caudata* Hook, but in the Fraterna the name of the photocopied drawing was changed to *H. flagellata*, without any explanation! You are not supposed to change anything without explaining why.
The problems do not end here: the drawing is actually of *H. caudata*, not of *H. flagellata!* This does not make sense to me to say that *H. flagellata* is different from *H. caudata*, and in the very same article use a drawing of *H. caudata* renamed by you as *H. flagellata*.

2. Scientific names (genus and epithet) should be written in italic, especially in publications to be scientifically correct. Therefore it should be *Hoya flagellata* Kerr, not Hoya flagellata *Kerr*. This error has been made in the Fraterna for years. Why?

3. *Hoya tamaleaaea.* The ending does not conform with the rules of Art. 60 in the International Code of Botanical Nomenclature (IBCN). But, what kind ending was actually supposed to be used here?

- It appears at first look that a feminine ending was intended? Then names that end with a vowel get the ending *–ae*; if the ending is *-a*, then only *–e* should be added. In this case, it should have been spelt *Hoya tamaleaae*.
But Vaiuki Tamaleaa is male. The masculine equivalent is *–i*, thus it should actually have been *Hoya tamaleaai*.
- Or was the same ending as *Hoya fetuana* considered? Then it should have been *Hoya tamaleaana*.
In any case, it should not have been *Hoya tamaleaaea*.
The worst part is yet to come: in the first sentence of the very same hoya, its name is designated as *Hoya xxxxx*. Terrible!!!!!
I guess this might cause the publication to be considered invalid.

4. *Hoya Lazaroi*, this species was already published one year ago in Asia Life Sciences 17(1) 57-70 (2008), and the text in Fraterna is not even half of the publication. Was an old draft used for this second publication? I do not see the point in publishing it again. Would the re-publication of *Hoya lazaroi* be perceived as a replacement of the orginal publication with "new and adjusted data"? This would then be a disaster.

The main concern of mine is that Fraterna is regarded as an international bulletin and a source of new publications, which are expected to be scientifically correct. Those new publications will be frequently used for further research, and for comparison reference for designating new species - just to mention some examples to make you aware about the big scientific importance that IHA possesses in Fraterna.

I consider the editor of Fraterna to be unaware of the importance of her position.
Although the criticism is primarily directed to the editor's performance of her duty, the entire board shares the great responsibility in what to be published by IHA.

I will write an article about those errors and mistakes in Hoyatelegrafen. It is my duty as editor to inform our members about the untrustworthiness (or unreliability) of Fraterna.

If I was a general collector, without any obligation from my involvement in the Swedish society, I would not renew my membership in IHA - and I would advise my friends to terminate their memberships as well. Yes, it is that bad.

Best regards

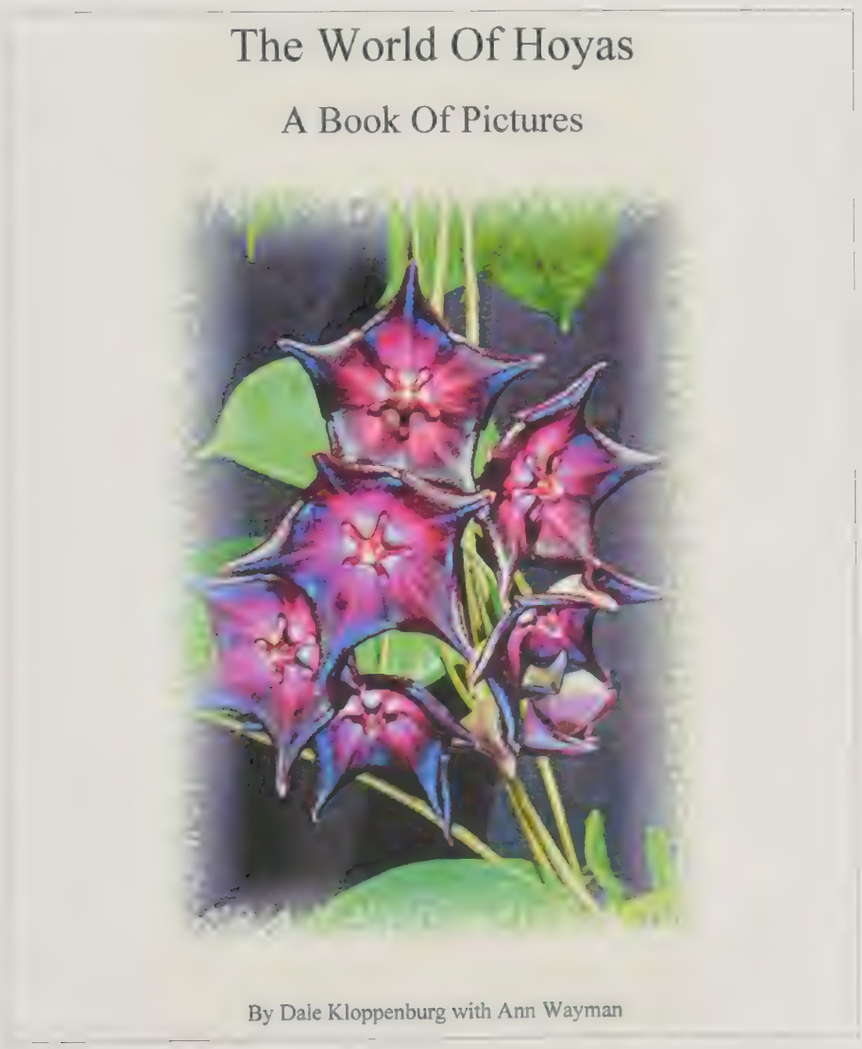
Torill Nyhuus"

ONE OF A KIND

Nothing like this has ever been attempted before! Dale Kloppenburg's wonderful text in "The World Of Hoyas" has been kept intact, while all the old black and white photocopies of herbarium sheets have been replaced by full page, full color photos of beautifully staged foliage shots with large photo insets of flower umbels that represent the particular species.

Some of the very best photographers in our organization have participated in the publishing of this book with many beautiful photographs, all labeled and correctly identified to the best of our knowledge.

If you have ever wondered what an entire plant, or even the leaves and growth pattern looks like when you see an especially beautiful umbel of hoya flowers, now is your chance. This beautiful book has been professionally bound in perfect binding with a semi-soft vinyl cover. contains 260 pages with several blank pages at the back for notes. Available now. Just $48.00 for the book plus $2.95 book rate postage in the U.S. Postage for priority mail anywhere else in the world is at present $12.95.



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Beautifully grown plant of H. variegata cv. Krimson Queen

Photographer unknown

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Hoya species # CMF-8

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Our Cover Story

This is a story of a poor little hoya that had no name of its own. Like many orphaned children, it was beautiful beyond compare but rather lost in a world surrounded by many gorgeous, flamboyantly veined species from the Philippines. At first it was thought to be H. bordenii, then H. benguetensis and finally H. cagayanensis where it remained for approximately ten years.

I received my first cutting of this species about 1989. It was a sickly looking cut about 4 inches long and I was doubtful that it would ever root and grow. It did however and proceeded to outshine just about every other plant in my greenhouse. The foliage is outstanding and beautifully net veined with what looks like white lace overlaid on a dark green background. It has a wonderful cascading habit that really shows off in a hanging basket.

As an added bonus to everything else nice about this species is the gorgeous umbels of up to 30 flowers that have flesh colored corollas and lovely pink corona lobes with a dark yellow center. It's an easy bloomer with the flowers lasting about 6 days but with more umbels opening in fast succession over a period of a month or so. It's actually a real "show stopper". Most customers who visit my greenhouse are literally stopped in their tracks when this plant is in full bloom.

I love almost all of the Philippine plants because they are so easy to grow and bloom, and this one is no exception. I use the same plant mix on all my hoyas. That is a 3-2-1- mix that I make myself from 3 parts of Peat Moss, 2 parts of Perlite and 1 part of Vermiculite. To this mix (because the peat is very acid) I add 3 ounces of Dolomite Lime to neutralize the acid.

As a rule, the Philippine plants do not like to get overly dry but do let them dry out to just barely moist, then water thoroughly. During the spring and summer I like to fertilize my plants with a balanced fertilizer such as "Peter's" 20-20-20 formula. Lately I have used Eleanor's VF-11 with great results in getting difficult plants to bloom.

I do admit to being the one who decided that this was H. cagayanensis and it is probably closer to that species than any other but Dale Kloppenburg says there are distinct differences, and since Dale has at least 20 more years of experience in studying this genus, I will always bow to his determinations, and accept that it is a new species, one that has never before been published. That is about to change. A herbarium specimen has been sent to University of California with the type sheet designation 20096 and will be published in "Fraterna" 4th quarter 2009 with a name of its own.

This clone was originally collected about 1986 by Charles Marden Fitch in Luzon, Philippines.

By

Ann Wayman

Hoya cagayanensis Schlechter

This clone was collected and grown by Monina Siar of University of the Philippines at Los Banos. According to Dale Kloppenburg. It is perhaps the true species of H. cagayanensis. Monina sent a small cutting to me that survived until I became Ill and others were taking care of my plants. It died a horrible drowning death. I hope to someday get another cut of this species and grow it to maturity. In the mentime I'll drool over this photo.

Hoya caudata *Hooker*

Perhaps one of the most flamboyant in both flower and foliage of all of the hoyas. The foliage is outstanding, thick and rigid, emerald green in color with large splashes of white. The flowers are rather small, pure sparkling sugar white with stiff white filamentious hairs along the edges of the corolla petals. The corona is two shades of red with the darker red toward the center and long, white, feathery stamens coming out of the center. I love this hoya for its flashy appearance and the way it draws attention from the visitors to my greenhouse.

I have purchased this plant from several different sources, the best being the one (shown here) that I purchased from Aloha Hoyas in Hawaii. I also have some very different clones that I purchased from David Liddle in Australia which haven't bloomed as yet. The foliage on these plants from Australia are smaller, not splashed with white, and a slightly different shape. I've had them for several years, so am looking forward to seeing some flowers in the near future, hopefully this year.

The foliage on these plants will turn a dark maroon red in bright sun, however I have found that the leaves will dry up rather fast when they get to this stage and fall off very shortly afterward. Since they grow and bloom so well in semi-shade, I don't like to put them in extremely bright light.

Hoya benguetensis *Schlechter*

This gorgeous species was the very first hoya that I ever saw in bloom except for the rather common hoyas that were avaiable in the stores back in the late 1980's. It was in bloom in the greenhouse of Dale Kloppenburg in Fresno, California. At that time, it was just another hoya from the Philippines with no name. Dale thought it was probably H. bordenii based on the shape, length and venation of the leaves. Specimens of preserved flowers were sent to Christine Burton who identified it as H. benguetensis.

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Dale sent a prized cutting of this plant home with me and it grew into a very pretty plant that continued to put on more of these beautifully veined leaves. It bloomed after about 2 years from this small cutting and has rewarded me every year since with dozens of flower filled umbels of up to 20 of these exquisite reddish flowers with a dark cranberry red corona

Another hoya from the Fresno trip of 1987. For years I knew this adorable little species only with the number above, until David Liddle identified it as H. pusilla. A beautiful plant and blooms with many umbels of these small pinkish flowers with red center and yellow corona.

Hoya Tales & Mini Descriptions for Pg. 9

Hoya dischorensis *Schlechter*

This species New Guinea species was purchased from David Liddle in the mid 1990's. It blooms at an early age and is very reliable, blooming from early March to mid September. The foliage is a beautiful emerald green and the flowers are yellow and quite fuzzy with a pure white corona. It's very agreeable and will adjust to just about any potting mix with adequite drainage material. Never let this plant dry out, especially when its in bloom. You will lose your flowers and buds.

Hoya kenejiana *Schlechter*

This is another of Dr. Schlechter's species from New Guinea that I purchased from David Liddle but this one was purchased in 2005. The H. kenejiana has been more or less a mystery from the time the collectors and nurserymen got ahold of it, seems that every plant that bloomed with a fuzzy yellow flower was called H. kenejiana. I'm not going to comment on the foliage of this particular plant because under my conditions it doesn't seem to conform to Schlechter's description or the type sheet. That may be because some of these old herbarium sheets are in such horrible condition that it's hard to visualize what they looked like as live branches. I really do love this plant with its gorgeous pale yellow flowers. It blooms first on bare stems while the leaves are still forming, then continues to bloom off and on through most of the summer.

Hoya halophila *Schlechter*

One of the dearest little hoyas that was ever created. It's small with small, medium green leaves that are slightly roundish. It throws out new branches from just about every node on the stems and flowers from every branch. This hoya is always covered with flowers and never seems to run out of steam. The flowers are exquisite little jewals with 15 to 20 in an umbel. The flowers are pink bordering on mauve. I would absolutely recommend this hoya to everyone. It appears to have everything but a fragrance.

Hoya kentiana *Burton*

I'm not real certain of this Burton publisher name but I seem to remember that Christine Burton did publish this species back in the late 1980's to 1990's. If I'm wrong, I'm sure I'll hear about it.

This is such a lovely little basket plant that I'm amazed everytime it blooms which is often and profusely. The flowers are exquisite, little, pink balls of fur that reflex backwards and showcase the large corona that is shaped like a Chinese pagoda.

When this plant first started blooming, I had never seen a flower like this, so I sent a photo to Michael Myashiro and he told me that many hoya species had this type of flower. Since then, I have, of course, seen many species with similar flowers but few are as agreeable as this one. The long, dark green, canoe shaped leaves cascade beautifully over the sides of the pot.

I keep this plant in a small 4 ½" hanging basket for the first several years. then move it to no larger than a 6" pot as it matures. It likes more water and feeding than many of its hoya cousins but will reward the attentive grower with beautiful growth and lots of gorgeous pink flowers. It appears to be practically bug proof. Once in awhile I will find a mealybug or two but it very seldom has other pests.

Both of these flower photos are H. fraterna *Blume*. The photo to the left was sent to me from Ann Strahm and is an umbel newly opened before the petals reflexed backwards. The photo to the right was sent to me by Mark Randal and shows the petals fully reflexed. A very beautiful plant and flowers. How this plant was missed in our collections for close to 150 years is due to an art drawing of the wrong plant in one of the Horticulture magazine`s back in the 1800`s.

Hoya dischorensis *Schlechter*

Hoya kenejiana *Schlechter*

Hoya halophylla *Schlechter*

Hoya kentiana

Hoya Tales & Mini Descriptions for Pg. 11

Hoya cv. metalica

A gorgeous hoya hybrid by a cross between H. fuscomarginata *N.E. Brown* and H. loyceandrewsiana *Green.* I haven't been able to find much information on H. fuscomarginata, I do, however, believe this is one of the most beautiful hybrids in existance, if it is truly a hybrid cross. The foliage is big, bold and looks very much like the foliage of H. loyceandrewsiana but sparkles as if the leaves had been shot with silver dust. The flowers look more like H. fuscomarginata. The corolla is white to pale ivory in color and the coronal lobes are extremely waxy and a beautiful shade of lavender with dark purple tips.

Hoya micrantha *Hooker*

These are tiny flowers with pedicels of different lengths that keep the flowers from forming compact umbels. I like it because the flowers are perfect and also very long lasting. It makes a nice hanging basket with it's rigid, cardboardlike leaves.

Hoya calycina *Schlechter*

The first time I saw this plant, I fell in love with it. The entire plant, stems and all, are covered with a short dense fuzz. The leaves are so fuzzy that it's hard to resist touching them.

The flowers are much like H. australis var. australis but not as large, however the red in the center just below the pure white corona, is much broader than the australis. This is one of the prettiest hoyas for growing in a hanging basket. If it gets overly dry, the leaves will turn a sickly yellow and eventually fall off.

Hoya dennisii *Forster & Liddle*

WOW! this is a beauty. I first received a cutting of this plant from Michael Myashiro in the early 1990's. It was labeled as merely Hoya sp. from Galego. When it bloomes, the dark pink flowers with a very dark rose red center are so beautiful that it literally takes your breath away. I lost my original plant many years ago and haven't been able to get one to grow since but Eva Karen Wiberg in Sweden sent this gorgeous photo to me to share with our IHA members.

Hoya chlorantha *Rechinger*

Beautiful fuzzy, green flowers adorn this clone of H. chlorantha. The foliage is full and a lovely shade of green but nothing spectacular. This species likes a lot of bright light in order to look good and bloom. Several hours of indirect early morning sun is perfect, just be sure to move out of any direct sun before the noon-day heat, as the leaves burn easily.

Hoya campanulata *Blume*

One of several hoya species discovered with cup-shaped blooms. I tried for years just to get a cutting of this species to root and grow with no luck. Finally I got a couple of rooted cuttings and they started growing. I have now had blooms on 3 of the plants. These flowers are not big and spectacular but they are rather pretty and certainly unusual. The corolla color can range from white to pale yellow with a pure white corona with a red center. I believe the color of the corolla is more or less dependent on the light that they receive or maybe even the heat where they are grown.

Hoya metalica a hybrid cross

Hoya micrantha *Hooker*

Hoya calycina *Schlechter*

Hoya dennisii *Forster & Liddle*

Hoya chlorantha *Rechinger*

Hoya campanulata *Blume*

Tales & Mini Descriptions for Page 13

Hoya hypolasia *Schlechter*

I'm always enchanted by the beauty of both the foliage and the flowers of this beautiful hoya species. I've never found anything adverse about it, except that it's very hard (at least for me) to get it growing. I see gorgeous photos of it in full bloom and huge healthy looking plants but alas mine always look small and rather sickly. If anyone knows a secret for growing this hoya, please share that information with me.

Hoya vanuatuensis *Green*

It's amazing how many people had this plant and thought it was H. diptera. I have H. diptera and also this species. The diptera is a fast growing shrubby plant with a rather wild branching habit, while this species can become a huge shrub with closely set leaves. The foliage is about medium sized, grass green and extremely waxy looking. My plant has only bloomed once about 2 years ago and had only 1 umbel of flowers. I didn't get a photo but once again, one of our members came to my rescue and sent this beautiful photo.

Hoya buotii *Kloppenburg*

To see the plain foliage on this species, you would never guess that it could sport such gorgeous flowers. I find this species one of the real challenges in the hoya family. It roots fairly easily but then seems to come to a standstill with no further growth, sometimes for a couple of years. I have found that they like very small pots to get established, then gradually move them to a little larger pot, just big enough to accommodate the root system. Always keep them moist but never really wet nor dry. That's just common sense that we all need to use for our hoya friends.

Hoya inflata *Wann. & Forester*

I'm not certain of the pedigree of this species. I assume it has been placed in the Hoya genus as I see it listed in the different nurseries as a hoya. I do have this plant, as a foster parent, and it has finally started putting out side branches after thumbing its nose at me for almost 2 years. This photo was sent to me from a collector friend who is growing it. When and if it ever blooms for me I will shout it from the house tops. I always get carried away when my hoyas bloom for the first time.

Hoya macgillivrayii *Bailey*

All of the clones of H. macgillivrayii are beautiful, the only difference is in the colors of the different clones. A well grown plant has beautiful dark green foliage and huge flowers, some as much as 3 inches in diameter. There is seldom more than 4 or 5 flowers per umbel but that is a sufficient amount to perfume an entire area. When mine are in bloom, I can't stay in the house because the fragrance pulls me into my greenhouse like a magnet

Hoya palawanica Schl. ex *Kloppenburg*

Another beautiful hoya from the Philippines, this one collected on Palawan Island. It was written up by Schlechter but never published. The foliage is simply gorgeous, much like Hoya bordenii but a much darker green with heavy, very distinctive veins, and doesn't turn reddish in bright light. The gorgeous mauve colored flowers can be up to 5/8 inch in diameter, the corona is a dark lavender with red tips at the base, and yellow in the center. As with many of the showy hoyas of the Philippines, this hoya has no fragrance that I can detect. A good bloomer!

Hoya hypolasia *Schlechter*

Hoya vanuatuensis *Green*

Hoya buotii *Kloppenburg*

Hoya inflata *Wann. & Forester*

Hoya macgillivrayii *Bailey*

Hoya palawanica *Schlechter ex Kloppenburg*

Tales & Mini Descriptions Descriptions for Page 15

Hoya globulifera *Blume*

I've owned this plant for several years but it only had a number on it so Im not real sure what it is. This photo that I received was labeled H. globulifera so I'm leaving it with that name for now. I doubt if the person that I got it from knows either. When it bloomed last fall, I was totally surprised. Here was this incredibly beautiful hoya blooming in my greenhouse. The flowers are intensely hairy on the inside and the colors are breath taking. The leaves have very short leaf stems (sessile), are rather flat, 2 1/2-3 inches long and a rather dull greyish green.

Hoya wallichii *Wight*

A larger campanulate flowered hoya in the Physostelma section. These flowers look very similar to H. campanulata but are much larger and usually pure white. This species is listed as a twining shrub, however I prune the twining branches of mine back to 2-3 sets of leaves per branch in order to keep it shrubby. It's a fairly good bloomer with sufficient light but has no scent.

Hoya cv. "chouke" A hybrid

This adorable little plant was created by Emilio Begine through a hybrid cross between H. carnosa (the pod parent) and H. serpens (the pollen parent). Plants become hybrids when two different species are successfully crossed. In this case the cross was successful due to the fact that the 2 parents are in the same section (eu-hoya) of the hoya family. This particular cultivar looks more like a very tiny version of H. carnosa but has the very fuzzy flowers of H. serpens. It is a good grower and fast bloomer, and has a very faint scent of honey suckle. I absolutely love this darling little plant and highly recommend it.

Hoya cv. "mathilde" A hybrid

Another of Emilio Begine's stunning little hybrids from the same cross as H. cv. "chouke" but is even smaller. The leaves are smaller and almost totally round like those of H. serpens. They are a beautiful emerald green, heavily splashed with white. The flowers don't appear to be quite as fuzzy as "chouke" but are in a tighter umbel, the flower color is greenish yellow with a red center. Another highly recommended hoya for the collector.

Hoya waymaniae *Kloppenburg*

This hoya has been written about many times, and usually by me. It was named for me but even had it not been, I would still grow it and write about it often. It is such an exceptionally different hoya and once I got it well established, has bloomed with these beautiful orange flowers every year as reliably as clock work, often with many umbels open at once. A few years ago I received a cutting of this species with completely glabrous, perfectly round leaves. I have not seen this plant flower yet but the flowers are said to be bright yellow.

Hoya wibergiae *Kloppenburg*

This is a beautiful new species with large impressive, heavily splashed leaves of green and silver. The flowers are practically identical to the flowers of H. pottsii, at least to the naked eye. This species was named for the collector, Eva-Karin Wiberg of Sweden. This plant was a little difficult to get started but once established, quickly grew into a beautifully shaped basket plant that is the pride of my greenhouse when in bloom. The flowers open a pale mint green but the long lasting flowers gradually turn white as they mature.

Hoya globulifera *Blume*

Hoya wallichii *Wight*

Hoya cv. "chouke"

Hoya cv. "mathilde"

Hoya waymanii *Kloppenburg*

Hoya wibergii *Kloppenburg*

Letter From The Editor

Please accept my deepest apologies for the late date of this issue. I experienced a devestating computer crash in mid May and lost all of my files that weren't copied over to disk. We had purchased a back-up box in August of 2007 and I didn't think it was necessary to also have an extra disk copy, (extra money, extra storage space) I discovered that my back-up hadn't been working when my new computer was installed. Needless to say, I had to immediatly start rebuilding all of my files from hard copies. I hadn't printed out any of the articles that I had ready to publish in this 2nd quarter issue, so I'm starting from scratch. I will be putting in many photos which I'm sure won't hurt anybody's feelings. Everybody loves hoya photos!

I will also be copying some of the articles out of very old Fraterna's. Actually when I was rereading some of them trying to decide which ones to add, I found some pretty interesting things that are appropriate for today. I guess growing methods and our love for hoyas never goes out of style!

Annie

Propagation of Hoyas by Rooting Stem Cuttings

Beverley Nichols, a well known English gardening writer, while enjoying a brisk walk on a late fall day, saw a rose geranium by the side of the road. The forlorn plant looked as though it would soon succumb to frost. He decided it deserved a better fate and decided to try taking a cutting from the stem. It was his first experiment in plant propagation and was indeed exciting for him. He said "It is exactly as though you were to cut off your wife's leg, stick it in the lawn, and be greeted on the following day by an entirely new woman, sprung from the leg." This is not too farfetched an idea today considering the progress in modern day cloning science !!

Using stem cuttings is but one of several approaches to vegetative propagation. Plants can also be re created from roots, runners, bulblets, and leaves, as well as from seeds. The propagation of hoyas is best done by using the stem cutting technique. A superior plant is inevitably reproduced with no variation whatsoever from the parent, namely a clone.

There are those who want their plants ready made and are satisfied with merely keeping alive mature plants. To others, however, the thrill and satisfaction of growing new plants and watching them develop gives a wonderful sense of achievement. As a hobby, propagating and growing your own plants can be soul satisfying and add immeasurably to the pleasure of everyday living.

Members of the plant world are endowed with a remarkable ability to reproduce themselves. This ability depends largely on several factors. Most parts of a

plant contain a natural rooting hormone. This is most concentrated at leaf nodes. Secondly, the activity of the cambium, which is a very thin layer of tissue composed of young embryonic cells filled with protoplasm (the physical basis of life) from which new plant tissues are formed. The cambium heals wounds by developing over them a protective callus tissue. Plants have the capacity to send out roots from an injured surface once a callus has formed over the severed base. Cuttings exemplify this fact. I have been most successful with the following methods of handling and rooting hoya stem cuttings.

The best time to propagate is in the early spring when plants are responding to increasing sunlight. However, hoyas can easily be rooted at any time.

What is the best rooting medium? Vermiculite, perlite, sand, sphagnum moss, water and soiless mixes all work well. My favorite is commercial soiless mixes amended with horticultural charcoal and coarse perlite. This allows for good drainage and eliminates the step of transplanting the rooted cutting into its permanent growing mix; thus not disturbing the rooted cutting. I prefer using 3- 4 inch clay pots that have been sterilized with a weak Clorox solution. One is less apt to over water in clay pots because they "breath" unlike plastic pots.

To take a stem cutting, select a healthy new green shoot 3 to 6 inches long. Make a fresh sharp clean cut just below a node, the point where two leaves are attached. Growth hormones are concentrated at the nodes, thus cuttings will root most readily here. If the cutting has traveled from afar, soak it in the sink in tepid water containing 4 tablespoons of sugar for 3 hours. This freshens it up and aids in photosynthesis.

For small leafed plants, remove enough leaves to provide a stem of sufficient length to pot. For large leaf species, just cover the node and leaf petiole with potting mix. Dip the bottom of the cutting and the lower most node in rooting hormone (Rootone) powder prior to potting. You need only a thin coating of this material. Some feel that the cuttings should be inserted into the potting medium at an angle rather than vertically. I find this makes no difference whatsoever in rooting. Firm the soil around the cutting with your fingers and bottom water the specimen. As the water percolates up through the soil, all air spaces around the cutting are abolished.

I then totally enclose the potted cutting in a clear plastic bag. It is then placed on the bench in moderate light and not disturbed for four weeks at which time good roots and growth will have formed. The plastic bag is then loosened and gradually removed over a period of 3- 4 days. A new wife has sprung from her rooted leg !!

And so, in many mysterious ways, nature safeguards the reproduction of its own kind. It is one of the wonderful processes with which she has endowed all plant life.

By

Vic Sencindiver, MD

Rewritten from Volume 12 1st Qtr. Pg. 2

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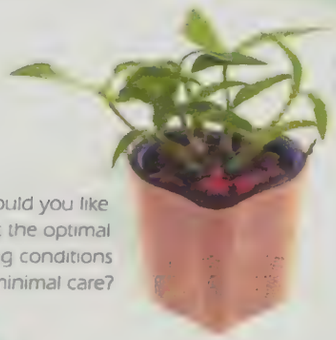

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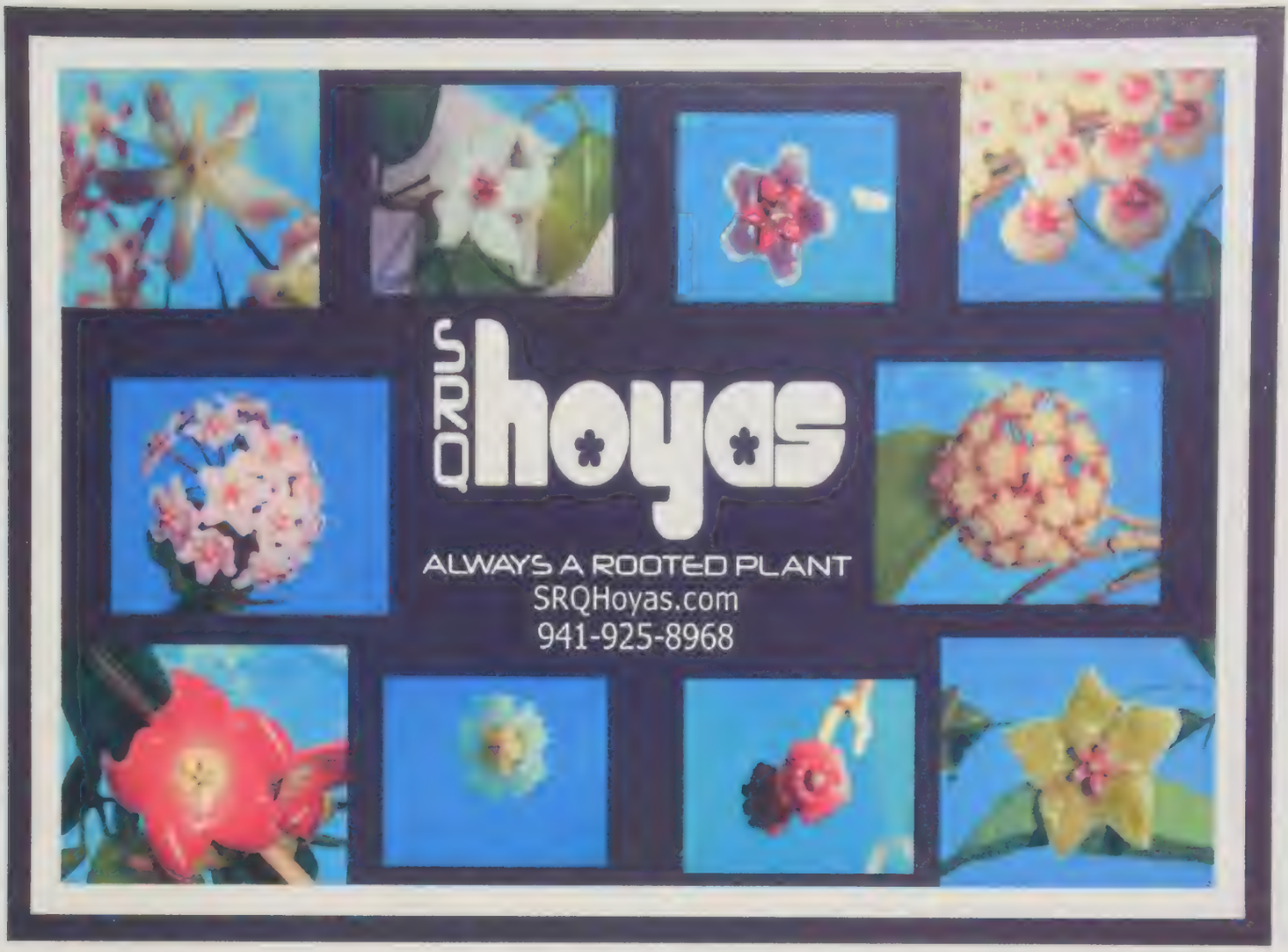

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If you will call the phone number listed on this ad, Joni will be happy to send you a complete list of the hoyas that she has available.

The phone number is 941-925-8968

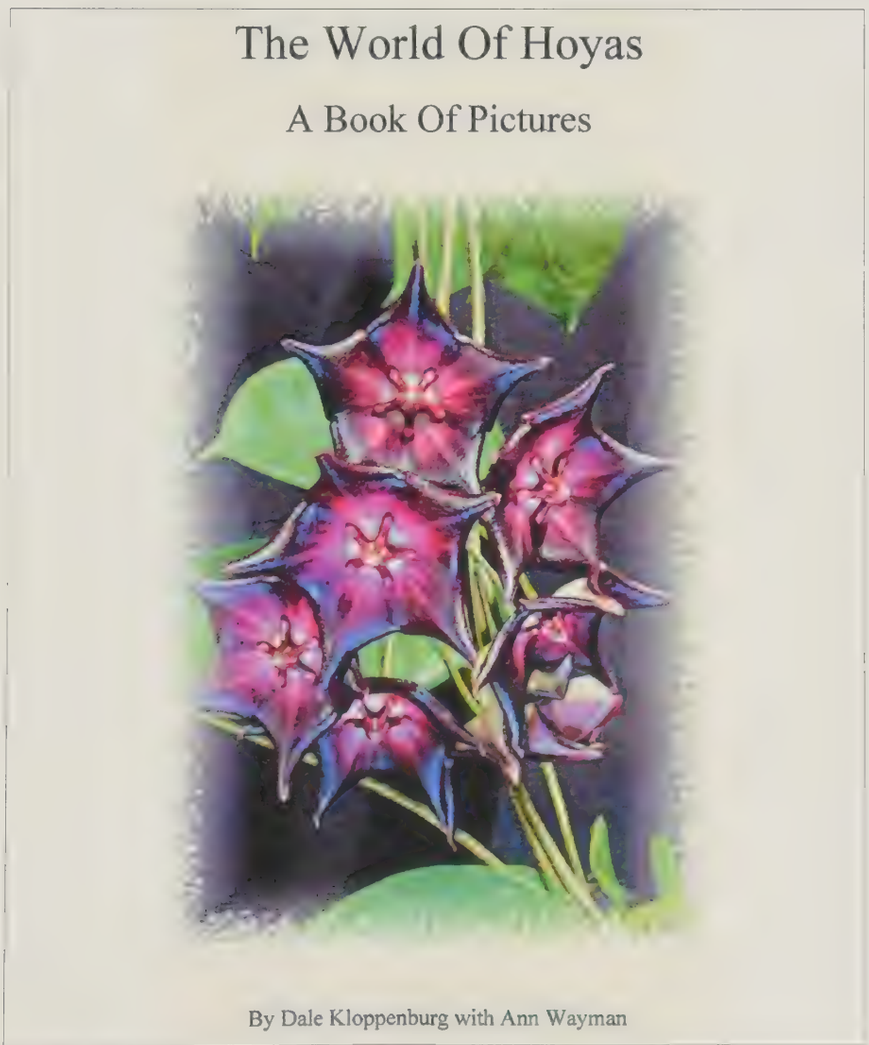
Annie

ONE OF A KIND

Nothing like this has ever been attempted before! Dale Kloppenburg's wonderful text in "The World Of Hoyas" has been kept intact, while all the old black and white photocopies of herbarium sheets have been replaced by full page, full color photos of beautifully staged foliage shots with large photo insets of flower umbels that represent the particular species.

Some of the very best photographers in our organization have participated in the publishing of this book with many beautiful photographs, all labeled and correctly identified to the best of our knowledge.

If you have ever wondered what an entire plant, or even the leaves and growth pattern looks like when you see an especially beautiful umbel of hoya flowers, now is your chance. This beautiful book has been professionally bound in perfect binding with a semi-soft vinyl cover. contains 260 pages with several blank pages at the back for notes. Available now. Just $48.00 for the book plus $2.95 book rate postage in the U.S. Postage for priority mail anywhere else in the world is at present $12.00 U.S.



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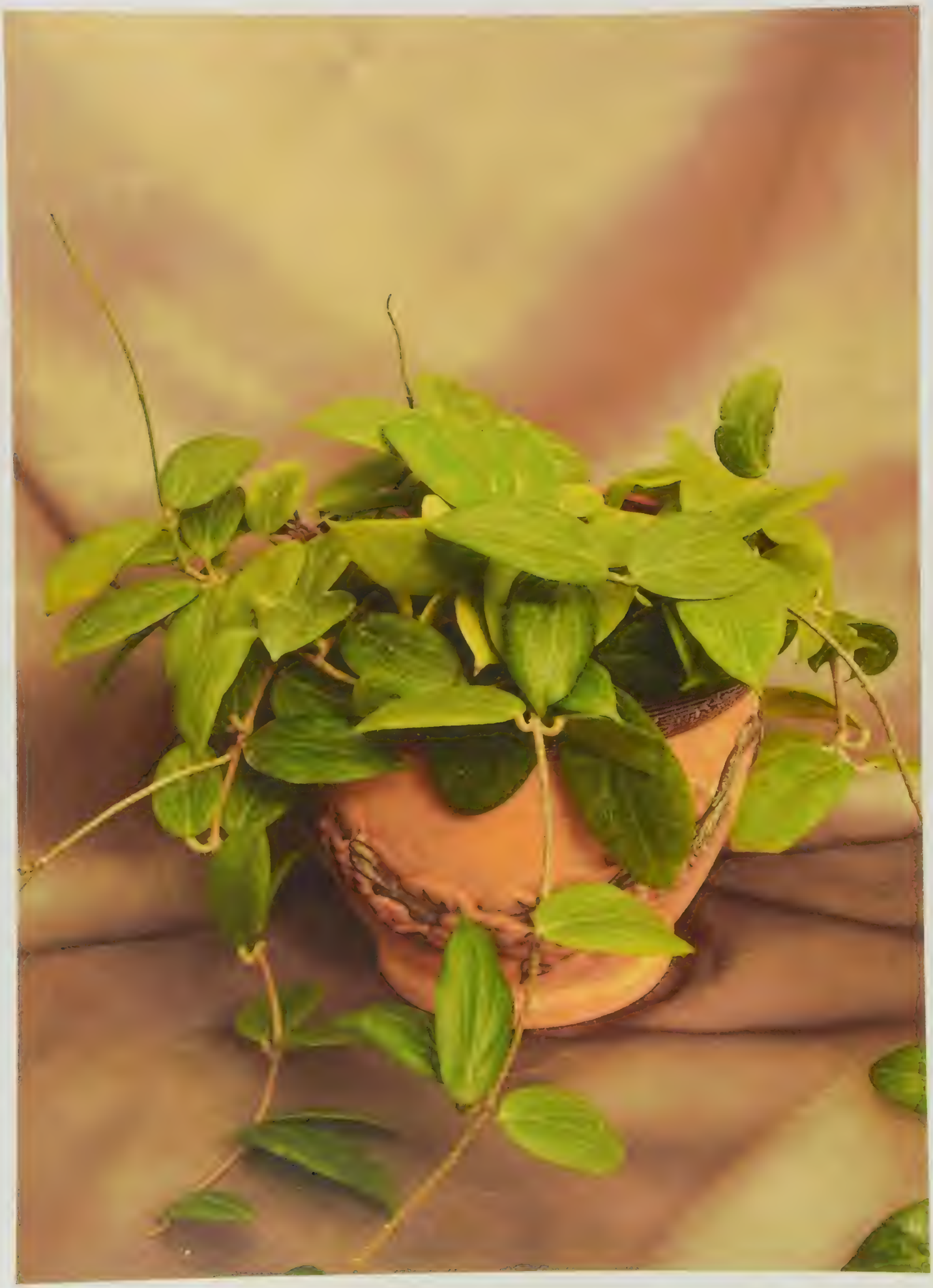

Foliage Photo of CMF-8

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FRATERNA

Official Bulletin Of The

Volume 22 # 3 INTERNATIONAL HOYA ASSOCIATION Jul - Sep 2009

Hoya microphylla *Schlechter*

Photo by Astrid Bostrom

International Hoya Association

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Back Cover:

H. microphylla *Schlechter* Cover Story & Description

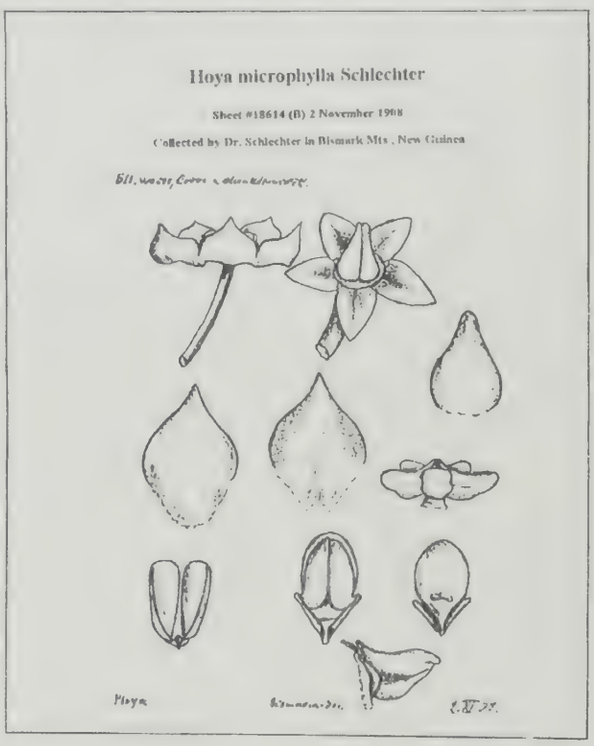
In Dr. Schlechter's Hoya Species (1993) 102 103. R. D. Kloppenburg. Hoya microphylla Schlechter. A very slender epiphytic half shrub with few branches. Branches threadlike, flexible, loosely leaved, round, sparsely puberulous. Leaves erect, spreading, ovate, somewhat obtuse, margins recurved, reticulately nerved, leathery, both sides glabrous. Petiole puberulous, above slightly grooved. Inflorescences slenderly pedunculate, umber like, about 6 flowered, with the peduncle puberulous, pedicels threadlike, glabrous. Flowers among the smallest in the section. Lobes of the calyx small, ovate, somewhat obtuse, glabrous, much smaller than those of the corolla. Corolla broadly campanulate, 5 parted all the way to the middle, outside glabrous, inside toward the margins of the lobes minutely puberulous, otherwise glabrous, lobes somewhat orbicular, shortly acuminate. Scales of the corona spreading, somewhat horizontal, above oval, with the apex slightly acuminate, below the middle concave underneath smooth margined, anthers very small. Pollinia oblong, toward the base slightly attenuate, with the translators very small, retinaculum rhomboid, minute.

A small epiphytic vine with threadlike loosely leaved branches. Leaves 1.2 1.7 cm. long, below the middle 0.7 1.2 cm. wide. Petioles 2-3 mm. long. Inflorescences in umbels of about 6 flowers on very a slender, shortly haired peduncle, about 3 cm. long. Pedicels threadlike, glabrous (bare) about 2 cm. long. Blooms for the section rather small. Calyx very small, lobes 1.5 mm. long. Corolla wide, bell shaped, extended 2 cm. in diameter. Corona scales from tip to the outer edge scarcely over 2 mm.

Northeastern New Guinea: on trees in the forests of the Bismarck Mountains, about 1100 meters altitude (Schlechter #18614 Blooming in November 1908).

A charming small species which is closely related to the two following ones. Its leaves are more like that of a Dischidia and are smaller than any other of the species in the section, in this area. The blooms are snow white with dark violet coronas.

Published by Dr. R. Schlechter in: 1913 Botanische Jahrbücher 50:127



More on H. Microphylla Schlechter

I have not been able to find much information on H. microphylla. I have never owned nor even seen this plant except in photos.

I think we can all agree that this is a beautiful flower and as always the swedish growers can grow and flower them to perfection. They also take great photos.

Ann Wayman

Eriostemma obtusifoliodes E. Gilding and T. Green sp. nova. Apocynaceae

TYPE: Bishop 736375, hic designatus Eriostemma obtusifoliodes E. Gilding and T. Green, Apocynaceae, species nova. Florae similis **Hoya obtusifolia Wight, Fl Brit India (1838)** sed planta disimmilem petiolus ca. 90° ad florae lamina itidem folia et pollinaria differt.. Ex hort. 97048TG Apinapin, Sabah, Malaysia.

Flowers resemble Hoya obtusifoliodes Wight, Fl Brit India (1838) but the plant is dissimilar; petiole bent down at about 90° to the midrib of the leaf blade, different leaves and different pollinarium.

DESCRIPTION:

A tropical, high climbing vine (to >40 m.) with pliable stems, in medium size trees in kerangas forests; loosely leaved, opposite, leaf blade ovate with obtuse base and apiculate tip and recurved, sharp edge, 4.0 to 6.5 cm wide x 6.0 to 10 cm long, top and bottom surfaces pilose becoming almost bald with age, obviously pinnately nerved with secondary veins about 80-90 degrees to mid vein; petiole 2-3.0 cm long x 0.38 cm in diameter, bent down at about right angle to the mid vein of the blade; pedicel 1.0 to 3.0 cm long x 0.25 cm to 0.4 cm in diameter, hirsute; peduncle persistent, positive geotropic, 1 - 0.5 cm long x 0.4 m in diameter, flower cluster 3–8 flrs., blooming in spurts; calyx 1.0 cm in diameter, sepals triangular lobed, hirsute; corolla 2.5 cm in diameter, lobes, bald, 1.0 cm x 0.4 cm, usually apple green but may be brown to red (on the same plant); corona 0.6 cm in diameter, outer lobes acute, inner lobes obtuse, dorsally depressed, yellow; ovaries 2; follicle not seen. Pollinarium 1.16 mm. x 1.53 mm, pollinium length 0.85 mm. width 0.30 mm. retinaculum head 0.37 mm., length 0.37 mm. ext. 0.21 mm. caudicle bulb diam. 0.11 mm. Follicle not seen. Sap thick, milky white.

Eriostemma obtusifoliodes, general growth with peduncle of flowers and buds

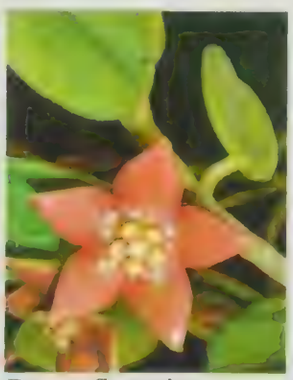
Front view Back view Side view

Calyx Profile

Calyx/column/corona Profile

Pollinarium

Petiole/leaf blade attitude



Brown flowering

Hoya obtusifolia Wight

ETYMOLOGY:
Like obtusifolia (its flower), from the Greek

Eriostemma obtusifoliodes E.Gilding and T. Green

25 July 2009

SEX AND SPECIES POPULATION IN HOYAS

Dale Kloppenburg and I have continually argued about everything under the sun but one thing that I believe might be of interest to you as a hoya collector is- Sex and Species Population in hoyas.

For nearly 150 years, botanists and collectors of hoyas have speculated and built up some theories and myths about pollination of the flowers by bees, moths, flies, skippers and bats but no one has actually seen the pollination accomplished. I personally have seen bees, flies and skippers working the flowers but have never seen a resultant pod develop from those flowers worked. As my plants are all grown in the open, all of the vectors have access to the flowers, also, there are very few pods develop on my plants and I have over 250! Thinking back, I recall only about 5 species producing seed pods.

Here is the classical drawing of the mechanics of a fly working a flower of H. globulosa, as shown in the Gardeners' Chronicle, April 29, 1882. Others have repeated this theory in one way or another ever since then. One thing it does not explain is how the pollinia, that so tightly clasp the insect's leg, are removed from the leg and properly inserted into the slot between the corona lobes. That would be the second step toward pollination. If you have ever tried to pollinate a hoya flower it is no easy feat – I can't do it and I have tried many times. As far as I know, only Michael Miyashiro and Ed Gilding have been successful in producing hybrids.

Can I offer a different proposal for the production of seed? Dale and I agree on this one - that the majority of all hoya pods have been produced parthenocarpically. Parthenogenesis (literally, born of a virgin) means that pollination (without a vector) does occur. The most famous

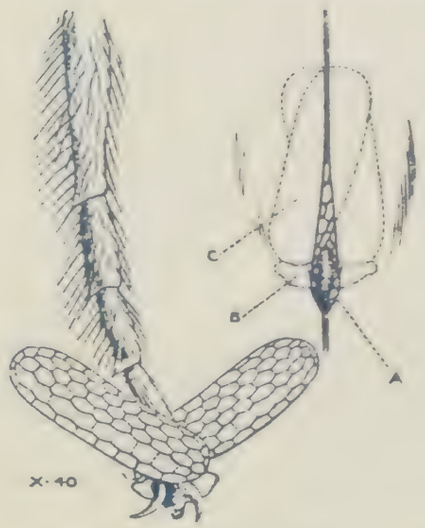


FIG. 91.—FERTILISATION OF HOYA.

Upper figure :—The pollinia within the furrow. A, Glutinous disc ; B, Elastic appendage of pollen mass ; C, Pollen mass. Lower figure :—Part of a fly's leg with pollen masses attached. The row of larger cells near bottom edge is pellucid.

from THE GARDENER'S CHRONICLE
April 29, 1882, page 570

FIG. 92.—FERTILISATION OF HOYA.

Flower with fly attached by four of its feet (B) to the glutinous disc of the pollen masses ; A shows one foot free, with one pair of pollen masses fixed by its glutinous disc (see further enlargement below) ; C, the combined pistils and stamens (gynostemium) ; D, Stigma ; E, Furrow, or pouch, with pollen masses beneath, and viscid disc emerging (see figure below), enlarged 4 diam.

example of parthenogenesis is the Thompson Seedless Grape.

On the other hand, if this parthenogenesis theory, were correct, there would be pods seen in the private collections worldwide – of those who grow their plants indoors. Except for her plant of H. parvifolia, Torill Nyhuus said that she knows of no pod setting in Sweden, where there are hundreds of plants grown indoors. Torill's plant, at no time, was exposed to outside vectors.

Interestingly, of all the Species studied by Dale that had pods with flowers still attached to the ends (68, mostly from Ralph Davis, Corona, CA.) only 2 or 3 had been pollinated (those were from their own pollen) the bulk were by parthenogenesis. All these hoyas were grown in the open , subject to insect or other possible pollinators. In Hawaii he observed a large red ant species that was devouring the hoya flowers. Here the hoyas had a huge number of pods, it appeared nearly every flower in a cluster was developing into a pod. He tentatively attributed this to some action of these ants, maybe masticating the pollen and in some cases getting it on the ovaries.

Actually the 3, of Ralph Davis', that had pollen tubes, none of the flower's pollinaria were dislodged but there was a polliniarum in each case spread in a linear fashion from the flower center and out over the flowers retinacula where the outer pollinium had germinated with tubes elongating over the stylar edge and into the Stigmatic area below (and thus into the ovaries in the flower center).

believe that the Hoyas have become so complicated in their mechanics for pollination that they are on a path to extinction if they depend solely on vectors for seed production.

Numbers

How Many Hoyas are there?

No one knows the number of Hoya species. If we count the number of species listed in Index Kewensis, up to 2008, we find about 563 Hoyas. But remember, Index Kewensis is only a listing of plants that have been published (described and named). It does not sort out duplication nor argue correctness of the names.

Just to do some mental arithmetic: Of this number we can assume that a certain percentage, say 20% or one-fifth, are synonyms (duplicates) so that drops the subtotals to about 460 species.

We can also assume that there are probably another 50% that have not been discovered and named. That brings the subtotals to about 700. We can also assume that in the last 180 years, the length of time that they have been registered in Index Kewensis, probably 10% have become extinct for one reason or another and there have been possibly about 5% in mutants created that are now valid species. It gets complicated and of course this is mere speculation and mental gymnastics!

Dale Kloppenburg and I both agree that there must be at least 1000 species or more of Hoyas. When I go on a collecting trip, I find more plants that escaped me the first time by being on the other side of the tree or around that rock that I looked at before! Or, in collecting, the majority of the time we explore only within a mile of a road or trail. Think of all of those hundreds of voids that we haven't reached. I have heard that Nathalie Simonssons of Sweden, who has collected in numerous out of the way places, now has many plants that are either not classified as yet, or are un-named.

It is understandable that in the evolution causing speciation, there will always be gains and losses but it most depressing to find that some of the losses were very handsome things and it is man's activities that have accelerated the loss. For instance, H. rufo-lanata was found in 1923, somewhere along the 12 mile long, Sungai Siput (River), in Perak, Malaysia. From the herbarium sheet that I saw at Kebun Raya, Bogor, Indonesia, the whole plant was covered with silky, one-third inch, red hair - truly a remarkable species! The Sungai Siput area in the past 70 years has been almost totally destroyed by hydraulic tin-mining and it appears that the fragile environment of H. rufo-lanata with it. This Hoya has never been found since. How many others on the Kew species list are now extinct?

So, if you think you have a big Hoya collection when you have 50, think again for you have over 1,000 to go.

Ted Green, Green Plant Research

Kaaawa, HI

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An Addendum to Above Article

I'm going to assume that there is no house flies in Sweden. It's very possible that Hoya parvifolia can reproduce without a vector, however I do have house flies, horse flies, ants and yellow jackets and they all live peacefully in my big enclosed building that I call a greenhouse. The only time I see seed pods develop on any of my plants is when I grow lax about spraying with "flying insect killer".

It is true that H. parvifolia is the most prolific species in producing seed pods but it's not the only one. All of the different varieties in my greenhouse in the H. acuta complex are always covered with seed pods from mid summer to late fall, as well as the different H. carnosa's and H. pubicalyx but only when I let the flies and yellow jackets live. I also get seed pods on H. serpens, when/if it decides to bloom, H. crassicaulis, H. incrassata, H. pottsii etc. Once upon a time, I even had 5 seed pods hanging from one flower of H. loyceandrewsiana. I can't say for sure what is pollinating my hoyas but since I always see the really big flies hanging around and landing on the flowers that end up with seed pods forming, I suspect it is the flies that are capable of pollinating them. They travel from one flower to another on the same umbel and occassionally they will also visit the flowers of different species of nearby plants that happen to be in bloom at the same time, so I 'm guessing that if I planted seeds from these seed pods, I would occassionally get a hybrid cross. I have also witnessed yellow jackets (a form of wasp) sipping nectar from the flowers and will sometimes be so saturated with sticky nectar that they can't fly, so will sit on a leaf and clean their legs and wings before taking off. Perhaps it's the yellow jackets that are pollinating them or a combination of both flies, yellow jackets and maybe even a moth thrown into the mix. I have them all! and in late summer to early fall I have seeds with little parachutes attached floating all over my greenhouse and often landing in pots nearby.

Many people have asked me why I don't plant the seeds. The answer is simple, What in the world would I do with 100,000 or more hoyas??? besides, I'm waiting for those 1,000 as yet uncollected species.

Ann Wayman

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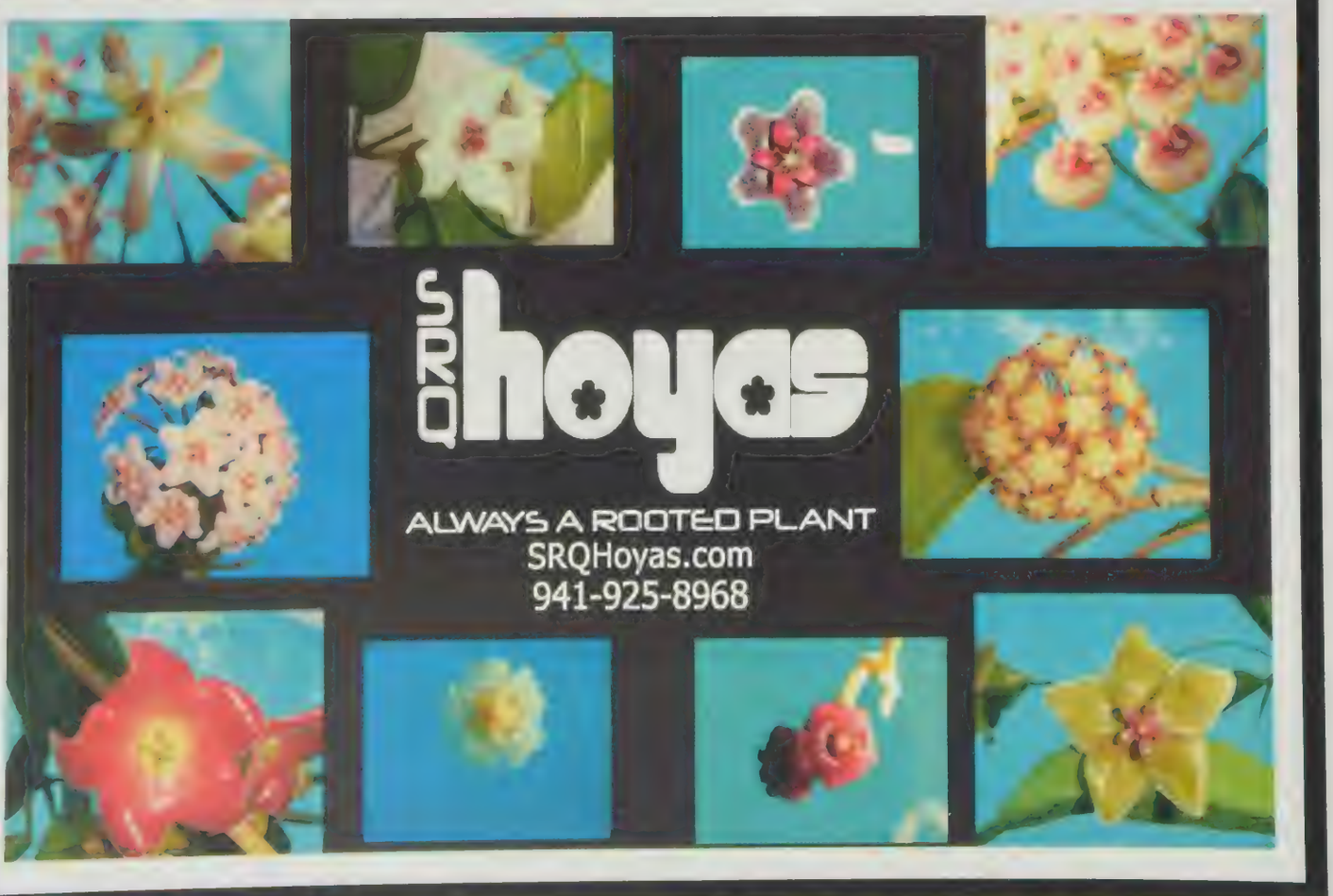


Thank God that Hoyas are not covered by CITES, as are all Orchids, Nepenthes, Cycads and many other plants that have been declared by someone to be rare and endangered. Under that classification, they are "protected" not conserved - CITES has nothing to do with conservation just the control of trade between signatory countries.

A better explanation might be this. An editorial published at the recent ii Orchid conservation conference at Selby Gardens, Sarasota Florida, in May of 2004.

EDITORIAL: CITES, A FAR CRY FROM CONSERVATION

TED GREEN

Green: Plant Research, P.O. Box 597, Kaaawa, HI 96730 USA. E-mail: Ted Green

Other than those within the bureaucracy of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), everyone agrees that the treaty, as it pertains to plants and as presently administered, is a failure. Each year, CITES becomes more and more unworkable. Rather than providing a way to solve the basic problem of conserving endangered plant species, it specifically abolishes the international trade in plants.

CITES and its administration have yet to save any endangered species. Conversely, the treaty has created a market for plants declared rare, when in fact they exist in great quantity in the wild or in nurseries. Because of the scarcity of data on which plants are considered rare and endangered, it is illogical to so list whole families and broad species, when justification for listing awaits fieldwork yet to be done.

The bureaucracy that has grown up to administer CITES around the world is self-serving and rules without recourse or oversight, much as the divine-right-of-kings and with appointments-for-life, as documented by the following facts.

For many countries, CITES paperwork has become a way of making money and a source of graft and control. The whole operation has turned into a money and hostage situation—time is money, and certification is held up or delayed to extract money.

CITES is administered selectively and inequitably by administrators far removed from the native countries of listed plants. Administrators, who dictate to and control those countries, consider all movement of plants to be "trade" (with a monetary value) and ignore the non-monetary scientific collection for research and the sharing of scientific knowledge between individuals.

Certification is left up to countries that lack people qualified to inspect and certify plant materials. Many inspectors are unable to distinguish nursery-grown plants from those collected in the wild, and some inspectors can not tell, without a label, if a plant is on a CITES appendix.

Far from the original intent of the Convention to control the trade and movement of wild-collected plants, CITES administrators have expanded their authority to hybrids and plants growing

in sterile flasks. Restrictions even are placed on seed collection, which ranks among the greatest chances for the conservation of many plant species.

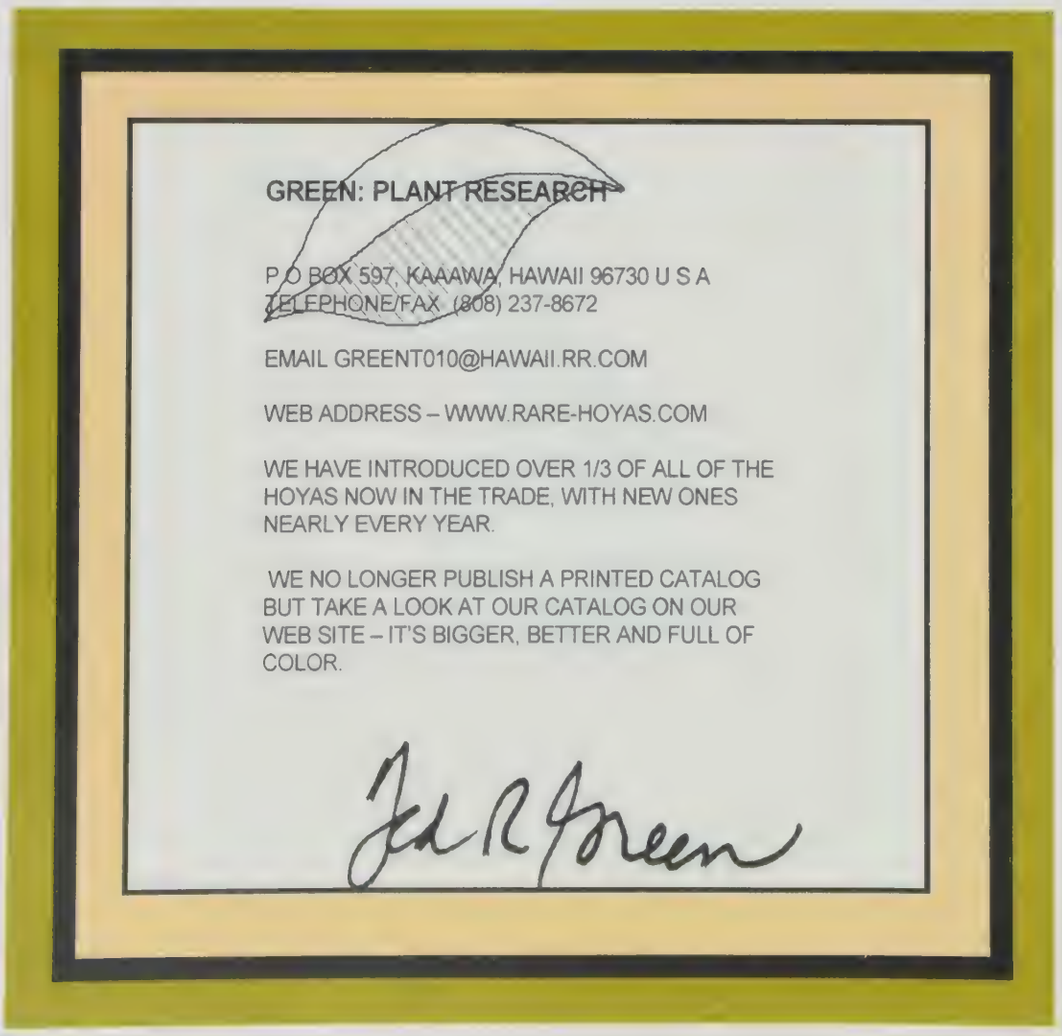
Prohibiting the salvage of plants destined for loss by logging, agriculture expansion, road building, or other means, is immoral and a far cry from conservation.

I call for oversight of the entire CITES process, not just the trade restrictions but also the incompetent administration and its rules. The problem should be moved to the courts for resolution; therefore, I propose that a committee be organized to investigate these claims. Signatory countries should be polled to see if they have changed their minds and want to be dropped from the list of Parties to the Convention, if they wish to regain control of their own property, both material and intellectual.

Those who agree that CITES needs oversight and change are invited to share their ideas and suggestions.

Additional comments, after this recent trip back to Borneo: **I believe that there will never be a true conservation program as long as governments issue permits for logging and land clearing of forests. As Geof Stocker once said, the value of the orchids and other plants destroyed in New Guinea far exceeds the value of the timber logged.**

How do you get governments to understand that; when forestry, agriculture and tourism departments are at odds?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Jed R Green

Hoya erythrostemma *Kerr*

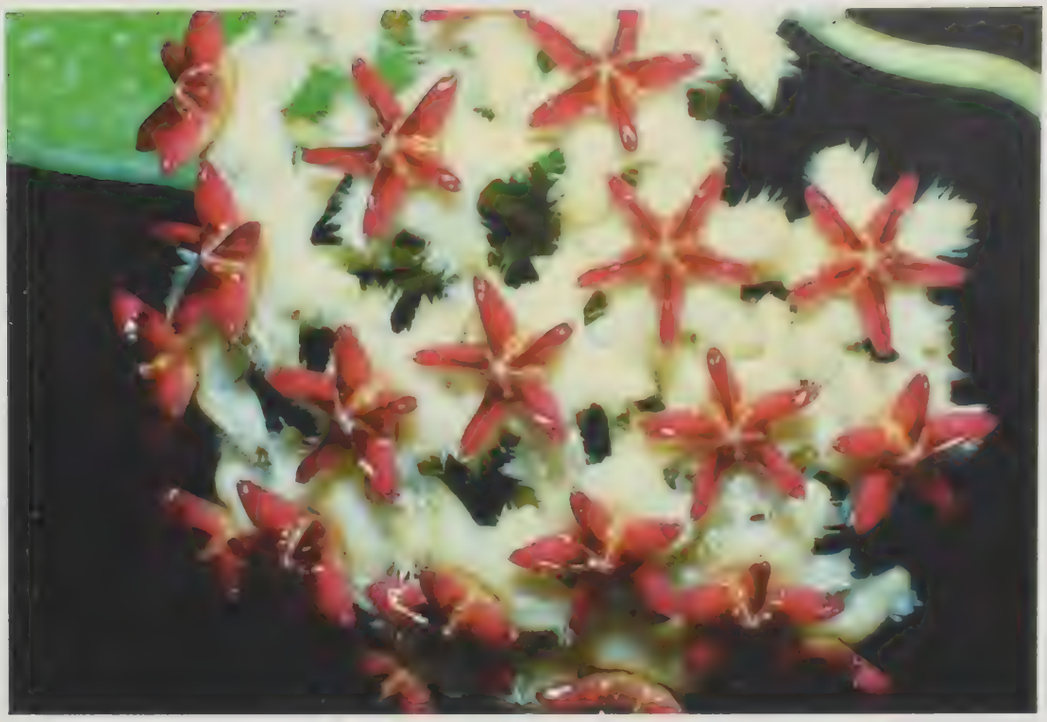

Fig. 22. *Hoya erythrostemma* Kerr. a) habit, b) fruit, c) flower in top view, d) flower in side view, e) flower in median section, f) two pollinia. From Kerr, 1924.

Of all the many hoyas that I claim to be my most favorite, this hoya H. erythrosemma *Kerr* probably comes closest to actually be "My Most Favorite" not only is the flower with its little ballet tutu skirt gorgeous, the foliage is a knockout with beautiful veining and a lovely emerld green color. I've seen photos of this flower where the petals appear to be slightly on the tan side in color, that isn't the case with the clone that I have had for over 15 years. It always blooms with sparkling white fuzzy petals and that unbelievable blood red corona.

If there was anything that would make it better, it would make me very happy if it were a more prolific bloomer. It's a little stingy in that department. It normally blooms for about 3 to 4 weeks in mid summer then takes a long rest until the next summer rolls around. When it decides to reward me with another display of blooms, it's worth the long wait.

Ann Wayman

PHOTO GALLERY DESCRIPTIONS

Top Left

Hoya imperialis *Lindley*: A beautiful, pure white to slightly green tinged variety of Hoya imperialis. I haven't found this to be an easy plant to get started but with patience and a rather light hand with the watering can, it can grow into a very impressive plant with many umbels of huge flowers of 2" to 2 ½" across. As with most hoyas, this species needs very bright light but no direct sun to bring into bloom. Photo by Ted Green

Center Left

Hoya subcalva *Burkell:* I'm not certain that this is H. subcalva Burkell, since Burkell's subcalva was published as an Ereostemma which this plant is not. However, by any name it is a beauty and with its wonderful fragrance of Concord Grapes is a winner in anybodys collection. Photo by Eva-Karin Weiberg

Bottom Left

Hoya magnifica *Forster & Liddle*: This is a species who's vines follow the sun and twine from East to west, in other words "clock-wise" at least in our hemisphere in North America. It is a species in the same section as H. albiflora Zipp. and H. calycina Schlechter with very large and extremely fuzzy leaves and stems. The big difference between this plant and H. calycina is in the size of the flowers which are larger than H. calycina and the red under the corona is a rather thin line of red instead of the broad red band that lines the area under the corona of H. calycina. The scent is also quite different and the aroma that it exudes is almost sickingly sweet. Photo by Eva-Karin Weiberg

Top Right

Hoya lasiantha *Korthall* : This beauty is a species that was hunted for over 100 years. Except for the fact that we had a drawing of it nobody seemed to think it existed except in someone's mind. It is a true fantasy flower with orange petals, corona lobes streaked with orange and purple, a pure white corona and white thick hairs on the inner corolla lobes. I find it rather hard to maintain in my conditions but when it blooms it's worth every bit of the effort to grow it. The foliage is magnificent, with large, dark green leaves that are slightly quilted. Photo by Ann Wayman

Center Right

Hoya thailandica: I'm not aware that anyone has published this species. This is however, a species that everybody wants but until now the supply was very limited. I was lucky enough to get 2 cuttings from David Liddle back in 2006. It has been a rather slow grower for me and hasn't bloomed yet but the plants are growing nicely and I expect to see flowers this coming year. I can hardly wait! Photo by Astrid Bostrom

Bottom Right

Hoya dimorpha *Bailey*: This species has beautiful lemon yellow flowers with a slight pinkish tinge at the tips of the corolla. The corona is the same pink tinged yellow as the corolla. The lobes of the corolla are rimmed with yellow fuzz which diminishes in length and density as it approaches the corolla center. It's a nice species and easy to grow. Photo by Ann Wayman

PHOTO GALLERY

PHOTO GALLERY DESCRIPTIONS

Top Left

Hoya camphorifolia *Warb.*: This species is a dainty semi-miniature from the Philippines. It has beautifully net veined, forest green foliage. The flowers are very tiny and it was thought for many years that it only stayed open for about 24 hours, however recently it has been observed to close at night and re-open the next morning. It will do this for about 3 days until finally closing for a final time. The flowers are a beautiful magenta color with a yellow crown and deep red corona lobes. Photo by Ann Wayman

Center Left

Hoya longifolia *Wallich*: One of my very favorite hoyas and a great bloomer. The leaves are extremely long, flat and quite pointed on the ends. The flower petals are pure sparkling white and very fuzzy on the inner surface. The corona is yellow and the corona lobes are white and very waxy. Some believe that this and the H. shepherdii are varieties of the same species, however, I have looked at flowers of both (side by side) under a microscope and see very little relationship between them. Photo by Ann Wayman

Bottom Left

Hoya Sp. from Borneo: I can't say too much about this plant. It came to me about 17 years ago with a tag that just said unknown species from Borneo. It has a very rounded leaf and flowers very much like H. loyceandrewsiana. It's one of the best bloomers that I have and blooms about 9 months out of the year. It has a great fragrance that reminds me a lot of Jasmine. Photo by Ann Wayman

Top Right

Hoya juanneguoiana *Kloppenburg* : I love this plant! A species very closely related to the H. incrassata/crassicaulis complex. This species has much larger flowers, the foliage is marbled with dark green veins and it blooms non-stop year around for me. The fragrance is light and very pleasent.If you have trouble pronouncing the name, remember that it was named for Juanne Guo, then add the iana which means it was named in her honor. Now you've said the name of this species and it's one of the best. Photo by Ann Wayman

Center Right

Hoya pubicalyx *Merrill* "Jungle Garden" One of the oldest and most beautiful of all the hoyas. The species pubicalyx has been known for well over 100 years and has many named varieties. This particular variety is typical of most of the cultivars in commerce. It has the beautiful coloring of many of the clones in the pink to red shades. The flowers are quite large and it blooms very reliably for several months of the year. It has a sweet almost overpowering fragrance like honeysuckle. Photo by Eva-Karin Weiberg

Hoya shepherdii *Short ex Hooker*: This photo of shepherdii is being included here to show the difference between this species and H. longifolia. The leaves are very long, curved up on the edges like a canoe and hang from the plant like stringbeans on a vine. The flowers are small but exquisite, light pink and just slightly fuzzy, the corona and corolla petals are also distinctly different, the corona petals drastically different. Photo by Ann Wayman

PHOTO GALLERY

PHOTO GALLERY DESCRIPTIONS

Top Left

Hoya cinnamomifolia *Hooker*: An old favorite, and one of the true beauties of the hoya world. The foliage is a beautiful dark green netted with white veins and can get huge. The flowers are also quite large with petals of greenish yellow topped with a huge crown of mahogony colored corona lobes. The stigma that is visable in the center is yellow. This plant can grow into a very large plant but can also get quite stringy unless it is kept pruned rather drastically. Photo by Ann Wayman

Center Left

Hoya pubicalyx *Merrill* "chimera": Another variety of the beautiful H. pubicalyx species. This particular plant has foliage with most of the colors in a paint palette, green, pink, purple, brown and white. The flowers petals are greyish brown and very fuzzy, the corona lobes are dark ruby red. If you're looking for a fantasy flower this is it. It blooms at a fairly young age (about 2 years from a cutting) and remains blooming for much of the spring and summer. This plant can get quite large and enjoys summers outdoors. Photo by Ann Wayman

Bottom Left

Hoya bordenii *Schlechter*: A gorgeous species from the Philippines. This plant has just about everything, beautiful dark green, heavily veined foliage that turns red with bright light and exquisite flowers of amber colored petals with a flush of brownish red at the base of the inner petals. The corona lobes are cranberry red with a prominent yellow stigma. With adequite light this plant blooms year around. Photo by Ann Wayman

Top Right

Hoya megalaster *Warb. ex Schumann/Lauterbach* : A very pretty dark leaved scrambler with extremely dark maroon, partially closed flowers. The corona lobes are an even darker, almost blackish red. H. megalaster is the name that was associated in error with H. onychoides for many years, mainly because the name megalaster means "Big Star" and the plant that has been named H. onychoides certainly fit that description except for the claw shaped petals..Photo by Ubon Paradee

Center Right

Hoya excavata *Teijsm & Binn*: Leaves light green, large and obovate with down turned edges describes the foliage of this plant. The leaves, in no way convey the beauty of the flowers of this species, which are pale rose on the inner petals, dark rose pink on the outer tips and dark magenta pink corona lobes, all this topped with a prominent, bright yellow stigma in the center. I would like to see a few more blooms with each flowering but I guess we can't have everything! Photo by Ann Wayman

Bottom Right

Hoya bicolor *Kloppenburg*: Another species in the category of "fantasy flowers" but only in the brilliant brownish/orange shades of the flower petals. The foliage of this plant is rather plain but clean and neat looking with large, very waxy leaves that are slightly wavy on the edges. The flowers are another story and anything but plain. The corolla as stated above are a beautiful dark brownish orange with startling pure white corona lobes. Photo by Monina Siar

PHOTO GALLERY

A Note from The Editor

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Without our advertisers we would not have the money to pay for our State and Federal organization filing fees, nor would we have the means to pay the non-profit fees for our bulk mailings which is now at $185.00 per year and going higher every year. Without our bulk mailing permit, the newsletters would cost us close to $2.00 each to mail out, or more depending on the weight. With the permit the cost is only 32 cents. The overseas mail is close to $4.00 each as we mail them all out via airmail. Our advertising dollars help to defray this cost. To our U.S. members, Please buy here in the United States and help our advertisers and all of us get through these tough economic times. We also have a Canadian advertiser who helps us with our costs and should be considered when buying hydroponic supplies.

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On another note, and speaking of cost, we find that everything that we use for publishing Fraterna: special paper, special toner for our printer, labels, large calendar envelopes for mailing, plus literally dozens of small items have all increased in cost. The chairman of the board of directors and I have discussed means of paying for all of these increases. We could go back to our sponsor a picture program or ask for donations but that would mean that only a few would be supporting a majority of the members. It was decided that the only fair way for everybody is to raise the subscription fees by $5.00 per year in the states and $10.00 per year overseas. Starting on January 1, 2010 the subscription and membership fees will be $30.00 per year in the U.S. and $45.00 for all foreign subscriptions. Those who have already paid for a 12 month subscription ending in 2009 will not be charged until your present subscription has expired.

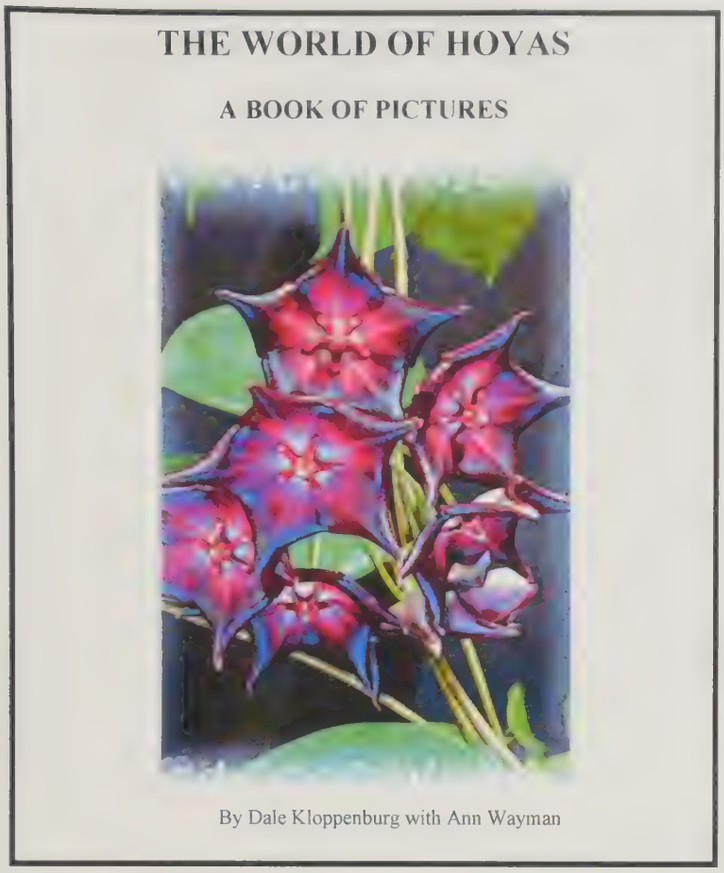
Error corrections in Fraterna

In Fraterna 2nd quarter the front cover photo and cover story was credited with collection of CMF-8 to Charles Marden Fitch. I have been informed that the name should be Charles Marsden Fitch.

In this, the 3rd quarter Fraterna pg. 14 was incorrectly printed as pg. 15. This error was noted after the printing and corrected by crossing out the 15 and setting the correct number 14 to the right. I expect to be more vigilant in the future!

Ann Wayman

ONE OF A KIND



Nothing like this has ever been attempted before! Dale Kloppenburg's wonderful text in "The World Of Hoyas" has been kept intact, while all the old black and white photocopies of herbarium sheets have been replaced by full page, full color photos of beautifully staged foliage shots with large photo insets of flower umbels that represent the particular species.

Some of the very best photographers in our organization have participated in the publishing of this book with many beautiful photographs, all labeled and correctly identified to the best of our knowledge.

If you have ever wondered what an entire plant, or even the leaves and growth pattern looks like when you see an especially beautiful umbel of hoya flowers, now is your chance. This beautiful book has been professionally bound in perfect binding with a semi-soft vinyl cover. contains 260 pages with several blank pages at the back for notes. Available now. Just $48.00 for the book plus $3.25 book rate postage in the U.S., Postage for priority mail anywhere else in the world is at present $13.50 U.S.

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Hoya microphylla Schlechter, s.n. (A)

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H. sp. paulshirleyi ***T. Green & D. Kloppenburg***

Photo by Ann Strahm

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Errors of fact may occur from time to time in "Fraterna", it is the policy of the IHA to publish corrections of fact, but will not comment on matters of opinion expressed in other publications.

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Back Cover

Our Cover Story

H. paulshirleyi

Each year in our 4th quarter issue we devote space for the publishing of several of Dale Kloppenburg's "new species." These new species comprise unknown species that were discovered, described, numbered and with a piece of dried plant material consisting of a stem with several leaves and usually a flower umbel attached or often with several flowers in an envelope. This plant material is taped to a piece of heavy cardboard about 15 inches or so square and placed in a herbarium where the temperatures are controlled and insect damage is kept to a minimum. Some herbariums have herbarium sheets dating back to the late 1800's.

These numbered species are given a name and new herbarium sheets are made up and sent to various herbariums around the world. Most of the species that Dale names and publishes are fairly recent discoveries, since many collection groups have been going to far away places and collecting in previously uncollected areas.

Dale Kloppenburg, Ted Green and several other collection groups have been going on these botanical expedition trips for the past 20 or more years with many new and previosly undiscovered species as their reward.

I first received this plant from Dale sometime around the year 2000 with just the name "unknown species from Sulawesi" and the collection number 8844. A few years later, I received this same plant from another grower with the name H. tomataensis and mistakenly assumed it had been published with that name. I was wrong and several people received this plant from me with that name. H. tomataensis is similar in appearance but much smaller in all diminsions (leaves, flowers and general growth habit).

This particular species has much larger leaves and flowers with a very distinctive vein pattern. The foliage can turn a beautiful pink or crimson color in bright light showing off the very ornate leaves.

The flowers are rather small but larger than H. tomataensis. The petals are pale pink with dark pink strip down the center and a dark red corona.

This species has been a slow grower for me and rather hard to keep the foliage looking really good but maybe I just haven't found the right conditions yet. However it does bloom very often and very profusely.

As with all of my plants, I will never give up on it and continue to make cuttings as soon as it gets new growth. I always figure in time I will stumble onto the perfect recipe for good growth as well as magnificent flowers.

Ann Wayman

Hoya paulshirleyi *T. Green & D. Kloppenburg*

This new species has an affinity to Hoya tomataensis, but is very distinct, the foliage is different, broadly ovate to elliptic, thickly coriaceous, base rounded, distinctly acuminate, with 3 basal nerves, nerves above reach the apex, and are nearly perpendicular, anastomosing and distinct. Pollinaria very different, pollinia 0.71 mm. long versus 0.37 mm. long All parts of the corolla corona and pollinaria are larger.

This new species we name for the collector Paul Shirley, who was with the Botanical expedition to N. W. Sulawesi in 1994, his collection number is 8844. We collected this at the base of Tonsu Hill Near a small waterfall where some trees had been felled. Paul has a nursery, growing and selling hoyas and other exotic plants in the Netherlands and is an avid plantsman. See www.paulshirley.nl/gardens.html.

A large leafed species, leaves 3 palmate anastomosing apex acuminate acute, base obtuse to subcordate. In the photo the secondary nerves are perpendicular to the midrib, the petiole is grooved above. Leaf 12 cm. long 7.5 cm. at the widest, glabrous

Section of the pedicel enlarged about 8X. It is strict, terete, glabrous, orange in color, 2.5 cm. long 0.09 cm. in diameter not enlarging until right at the calyx base.

A closed flower with calyx at base enlarged about 8X. The calyx outer surface is granulose, the sepals do not reach the corolla sinuses, Outer corolla is glabrous, lobes widest above the sinuses.

Side view of the calyx enlarged about 8X. Sepals are ciliate, broad based triangular but apex is rounded, overlap at the base 1/3. 0.14-0.25 cm. long and 0.15 – 0.19 cm. at the widest.

Calyx inside view enlarged about 8X. Inner surface is slick, glabrous, thin basal ligules are present. Texture of sepals sub-membranous.

Outside surface of the corolla enlarged about 8X. Surface is finely dull granulate, center area a convex dome ca 0.35 cm. in diameter, opening 0.15 x 0.13 cm. Texture sub membranous.

Inside view of a flower enlarged about 8X. Corolla inside is pubescent. Corona is horizontal, glabrous and finely sulcate.

Sinus – sinus	0.37 cm.
Sinus – center	0.35 cm.
Sinus – apex	0.60 cm.
Apex – center	0.75 cm.

Bottom view of the corona enlarged about 8X. The lobes are channeled to the central column, rolled edges are sulcate, glabrous, outer apex is acute, broadest near the middle. Collar short and thick walled.

Top view of the corona, inner lobe is dentate, do not reach the center, dorsal is slightly concave with a noticeable umbo forward, outer apex is acute and exceeds the corolla sinus.

Apex – apex	0.36 cm.
Apex – center	0.40 cm.
Widest	0.22 cm.
Ret. - ret.	0.09 cm.
Ret. - center	0.06 cm.
Aw. - aw.	0.20 cm.
Aw. - Center	0.15 cm.

The anther wings and retinacular area are sunken below the scale dorsal surface

Side view of a scale enlarged about 32X. lobe is horizontal, note umbo near inner apex. Anther here bent down in abnormal position.

Pollinarium enlarged about 165X.

Pollinium

length	0.71 mm.
widest	0.20 mm.

Retinaculum

length	0.18 mm.
shoulder	0.12 mm.
waist	0.05 mm.
hip	0.09 mm.
ext.	0.02 mm.

Translators

length	0.10 mm.
width	0.05 mm.
depth	0.01 mm.

Caudicle

bulb diam.	0.07 mm.

Hoya krohniana Kloppenburg & Siar sp. nov.

krohniana Kloppenburg & Siar sp. nova. Typus 70365 CAHUP hic designatus. Section Otostemma Blume, Hoya lacunosa Blume affinis sed pedicelli longiores 1.4 cm. vs. 0.6-1.25 cm. et corolla magnam 1.20 cm. diameter camplanatus vs. 0.65 cm.; coronae lobus apex – apex 0.25 cm. vs. 0.15 cm. differt.

This new species is like Hoya lacunosa Blume but different as the pedicels are longer 1.4 cm. vs. 0.6-1.25 cm. and the corolla is larger 1.20 cm. in diameter flattened vs. 0.65 cm. and the lobes of the corona apex to apex are 0.25 cm. vs. 0.15 cm.

Many of the herbarium sheets labeled Hoya lacunosa Blume seem to have a leaf size and shape of this species eg. 2124, 20343, 25483a, 25483b, 29722, 38528, 38751. (BO). They may or may not be this species. Other herbarium sheets with leaf sizes and shapes more like what we consider Hoya lacunosa Blume are 47950, 43093, 43043 (BO), 1974 (US) and 72 (PRE). Hochreutiner in Candollea 6 (1936) 477 says: "we wish to emphasize how much the leaves of this variety resemble those of Hoya ruscifolia of Luzon". Hoya ruscifolia Decaisne was named without flowers or a place location, so at present is useless in species determinations. Houchreutiner states also "highly ovate and slightly netted leaves, exactly as in plate 5272 of Bot. Mag." The leaf drawings for the most part are not ovate but rather ovate-lanceolate apiculate, I thus conclude these observations are suspect.

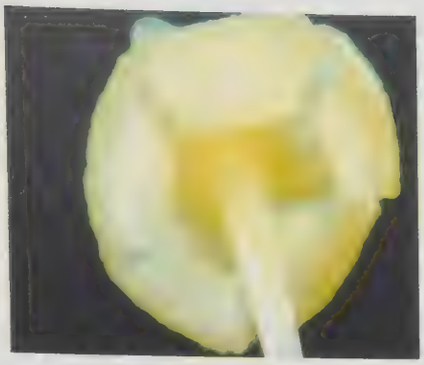
Flowers from Cindy Krohn 11/1/06 thought to be from the Philippines. Small cordate deep green opposite foliage. This species is named for her late husband Phillip, who obtained this plant.

Outside view of the pedicel and calyx enlarged about 8X, Sepals are thin but centrally thickened, triangular. Apex narrowly rounded 0.16 cm. long, 0.05 cm. at the widest, pedicel base rounded and 0.18 cm. across, all parts glabrous, surface of sepals finely lenticular-granulose, base granulose.

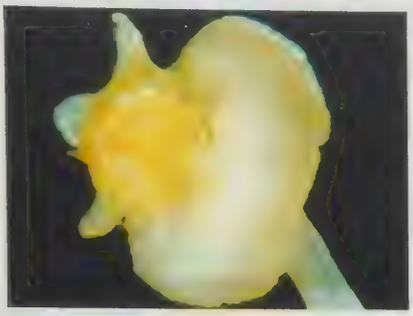
Pedicel strict. terete, glabrous 1.4 cm. long 0.10 cm. in diameter.

Inside view of the calyx and ovaries enlarged as above. There are ligules present, ovaries are bottle shaped, 0.15 cm. tall, glabrous, apical area narrower, base pair 0.09 cm. wide.

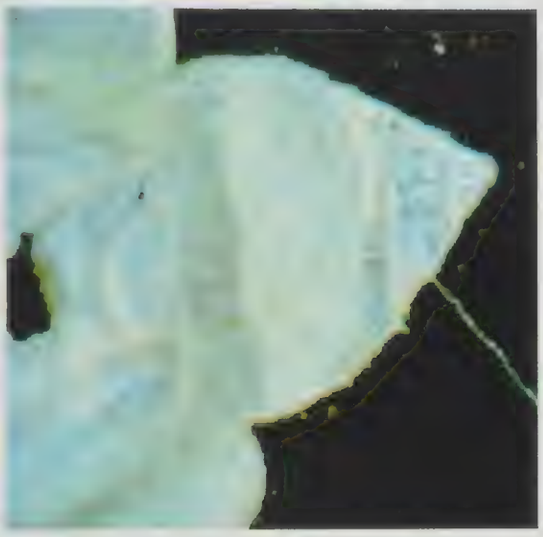
Outside of flower enlarged about 8X, pedicel, calyx and corolla, sepals reach a little over ½ way to the corolla sinuses, corolla outside glabrous and finely granulate, pedicel glabrous and smooth except at the enlarged base which is roughly granulate.



Back of flower showing the revolute corolla surface. Pubescent except for the apex that is glabrous. Enlarged about 8X.



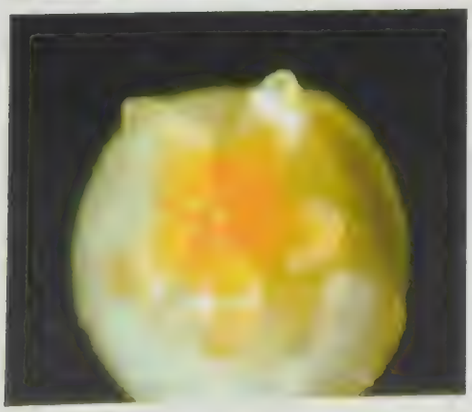
Side view of the flower, showing revolute corona an Oreostemma type corona, coronal scales raised in the center and saddle shaped back with raised outer lobes.



Corolla lobe apex outside view, corolla cut about half way, apex acute.

Sinus – sinus	0.24 cm.
Sinus – center	0.23 cm.
Sinus – apex	0.38 cm.
Apex - center	0.60 cm.
Widest	0.25 cm.

Inside surface of the corolla enlarged about 8X. Note the pentagonal thickening around the center and under where the corona would be. Surface is pubescent except for the apical area.



Top view of the corona, glabrous and shiny.

Apex – apex	0.25 cm.
Apex – center	0.27 cm.
Widest	0.13 cm.
Ret. – ret.	0.07 cm.
Ret. – center	0.07 cm.
Aw. – aw.	0.11 cm.

Bottom view of the coronal scale where there is a long central column 0.08 cm. long and 0.09 cm. in diameter. The corona skirt extends downward (centrally) around this column, skirt is continuous with scalloped areas between the lobes.

Pollinarium enlarged about 165X.

Pollinium	
length	0.34 mm.
widest	0.13 mm.
Retinaculum	
length	0.09 mm.
shoulder	0.04 mm.
waist	0.02 mm.
hips	0.03 mm.
ext.	0.02 mm.
Translator	
length	0.19 mm.
widest	0.035 mm.
depth	0.01 + mm.
Caudicle bulb is elongate D shaped	
length of bulb	0.10 mm.
widest	0.07 mm.

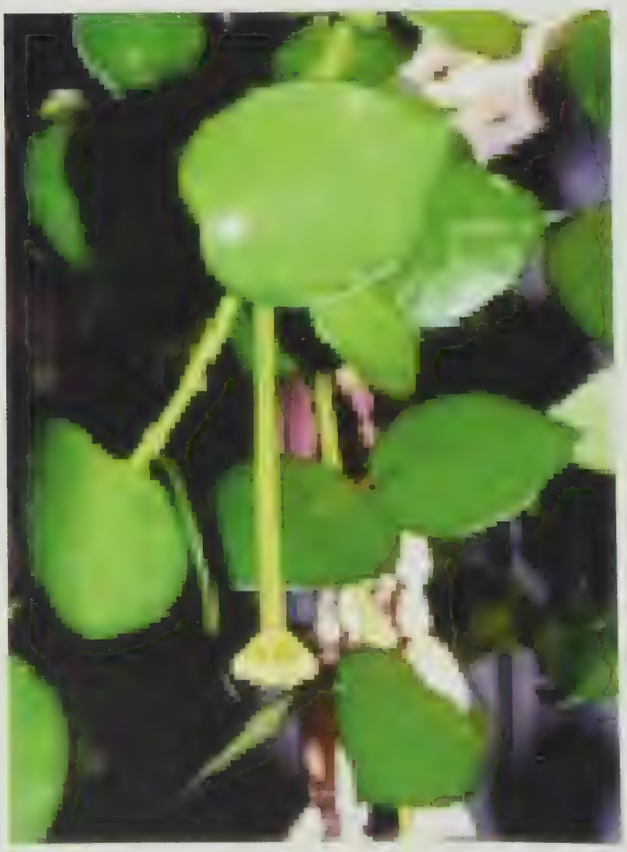
The translators are very long extending beyond the pollinia apex and the caudicle bulbs. Bulb portion of the caudicles lay on the translators are long and bulbous with long extensions entering the retinacula sides.

Hoya krohniana Kloppenburg

Photo by Ann Wayman

Photo by Ann Wayman

Photo by Cindy Krohn



Hoya panayensis Kloppenburg & Siar 2010

Hoya panayensis Kloppenburg & Siar sp. nova, typus 32378 (UC) R. C. McGregor, hic designatus. Section Acanthostemma (Bl.) Kloppenburg. Similes Hoya gigantangensis Kloppenburg, Fraterna 1992(4) sed corolla rotatus non revolutus; folia brevior 3.6-7.6 cm. vs 11-16 cm., calyces non ciliate; coronae segmenta interiora spatulata non ligulata; coronae non erectus, differt.

This new species is most similar to Hoya gigantantangensis Kloppenburg in leaf shape but they are shorter 3.6-7.6 cm. long vs. 11-16 cm. and the corolla here is rotate not revolute. The calyx is not ciliate and the corona interior segments (inner lobes) are spatulate not ligulate and the corona is not as uptight.

The type material was collected at Antigue Province, Panay, Philippines and labeled as Hoya gracilis var. this is not gracilis, inner corona lobe too long, flower's here are twice as large, retinaculum not minute, pollinium too short. Isotype at (BO).

Data below from the Type sheet at (UC):

1. Pedicel enlarged about 4X, 2.3 cm. long curved, glabrous, 0.09 cm. in diameter.

2. Inside view of the calyx enlarged about 4X. Sepals are thin, 0.12 cm. long, 0.09 cm. wide near the base, a little overlap, glabrous on all surfaces, apex obtuse, no ligules noted.

Ovaries: 0.12 cm. tall and wide at the base of pair.

3. Bottom view of the flower enlarged about 4X. Surface is glabrous-granulate, sepals here darker and do not reach the corolla sinuses.

Sinus – sinus	0.16 cm.
Sinus – center	0.27 cm.
Sinus – apex	0.35 cm.
Apex – center	0.69 cm.

4. Inside top view of a flower enlarged about 4X. Here the corona is pressed flat. It is bilobes, an Acanthostemma (Bl.) Kloppenburg Section flower. Inner lobes are long spatulate, outer lobe is obtuse, short, bifid extensions meet at the end along the apex side. Surfaces are glabrous, flattened the lobes reach the corolla sinuses. surfaces are finely sulcate on bilobes. Corolla surface inside is pubescent.

5. Photo of one coronal scale enlarged about 8X or more, note inner lobe is long and spatulate covers the center, outer lobe between the two extending bilobes is obtuse. bilobe apices meet at the ends, surfaces are sulcate.

Apex – apex	0.16 cm.
Apex – bilobe end	0.30 cm.
Widest	0.12 cm.
Ret. – ret	0.07 cm.
Aw. – aw.	0.16 cm.

The underside is channeled, open in center and side lobes are narrow to near the sinuses with central area around the column open.

6. Pollinarium enlarged about 42X.

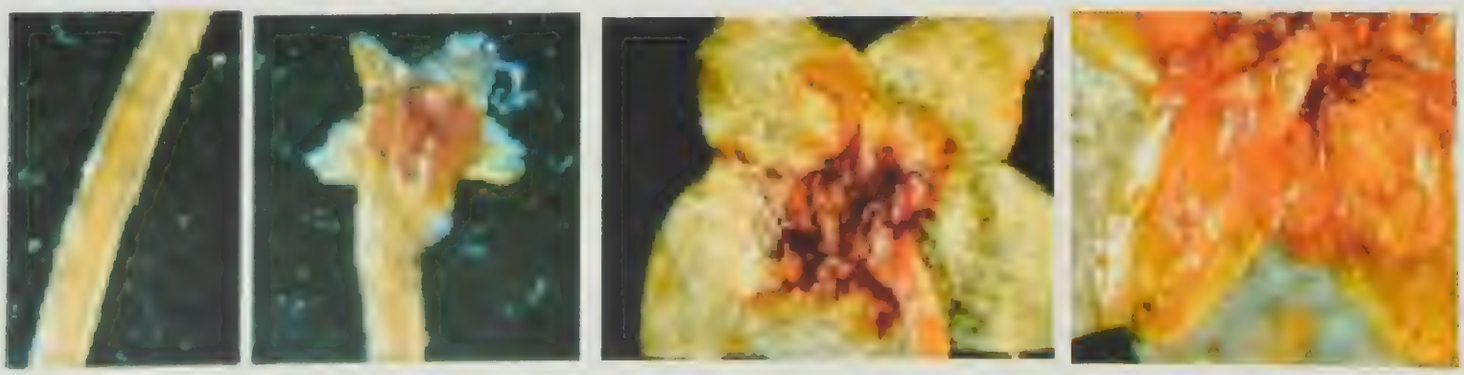
Pollinium		Translator	
length	0.37 mm.	length	0.11 mm.
widest	0.14 mm.	depth	0.02 mm

Retinaculum		Caudicle bulb diam.	0.05 mm.
length	0.13 mm.		
shoulder	0.07 mm.		

7. Pollinium enlarged as above .

Foliage glabrous, elliptic-lanceolate, apex acute, nerves pinnate, base sub-obtuse to ovate. 3.6 – 7.6 cm. long x 1.5 - 2.7 cm at the widest.

1. **2.** **3.** **4.**



5. 6. 7.

Hoya gracilis Schlechter 32378 (BO) as var.

Misidentified

Hoya fitchii Kloppenburg

Hoya fitchii Kloppenburg sp. nova. Typus 20096 UC) hic designatus, ex hort., Kaaawa, HI, USA. Hoya cagayanensis (Schlechter ex Elmer) Burton 1987 similis sed lobus corollae brevium, 0.44 cm. vs. 0.60 cm. et latorum, 0.40 cm. vs. 0.33 cm. Pollinia Hoyae cagayanensisae minores 2x retinaculo quam longae vs. Hoya fitchii plus 3x quam longae.

Similar to Hoya cagayanensis Burton but the lobes of the corolla are shorter 0.44 cm. vs. 0.60 cm. and wider 0.40 cm vs. 0.33 cm. The Pollinium of Hoya cagayanensis is less then 2x as long as the retinaculum whereas this new species is more than 3x longer. In addition the outer coronal lobes here are acute, not obtuse as in Dr. Schlechter's drawing on the type sheet and the dorsal surface has a keel from apex to apex.

This clone was originally collected by Charles Marsden Fitch, a recognized photographer, ca. 1986, in Northern Luzon, Philippines. His collection designation was CMF #8. In the past this species has been identified as Hoya bordenii Schlechter and later and more recently as Hoya cagayanensis Burton. Like both of these species this new species has foliage with prominent triplinerved nervation that stands out and is distinctive. Blades 4-6 x 2.5-3 cm.

Material sent by Ann Wayman Nov. 2005 Photo and data 11/5/05 Roll 332

1. Side view of the pedicel, calyx and ovaries enlarged about 4X. Pedicel: strict, terete, glabrous. 1.5 cm. long, 0.08 cm. in diameter. Calyx: sepals nearly reaches the corolla sinuses, edges hyaline, centrally thickened, outside granulose, glabrous.

2. Top view of the calyx. enlarged about 4X Inside surface glabrous, shiny, sepals overlap at the base about 1/3, ligules are present, actually double one on top of the other, lower one larger than the one on top. Edges ciliate.

Apex – base	0.18 cm.
Apex – center	0.22 cm.
Widest	0.17 cm.
Base – sinus	0.06- 0.07 cm.

Ovaries: short dome shaped. 0.11 cm. tall and 0.11 cm. wide at base of pair, glabrous.

3. Outside view of the flower, enlarged about 8X. Difficult to differentiate but sepals nearly reach the corolla sinuses but still short a little. Sepal outside surface granulose. Corolla surface glabrous with fine granulations.

4. Outside surface of the corolla enlarged about 8X. The surface is dull and glabrous.

Sinus – sinus	0.30 cm.
Sinus – center	0.25 cm.

Sinus – sinus	0.30 cm.
Sinus – center	0.25 cm.
Sinus – apex	0.44 cm.
Apex – center	0.60 cm.
Widest	0.40 cm.

Corolla is cut a little more than half way, lobes widest above the sinuses, center not much thickened. Apex acute.

5. Inside surface of the corolla, enlarged about 8X. Surface is puberulent, central region with a small pentagonally thickened area which is nearly glabrous. (area under the corona).

6. Bottom view of the corona. Lobes are channeled to area in from the sinuses, lobe lower surfaces are glabrous and diagonally sulcate. Anther wings are thick and protrude beyond sinuses, center is a thick walled short column.

7. Top view of the corona, surfaces glabrous, enlarged about 8X. Inner lobe is short, dentate, does not reach the center, dorsal surface is slightly concave with a forward raised area and also a raised area in the median near outer apex, which has a somewhat blunt apex.

Apex – apex	0.30 cm.
Apex – center	0.33 cm.
Widest	0.12 cm.
Ret. – ret.	0.10 cm.
Ret. – center	0.09 cm.
Aw. – aw.	0.20 cm.
Aw. – center	0.17 cm.
	Outer apex – outer apex on adjacent scale 0.38 cm.

8. Inside view of a flower, enlarged about 8X. Coronal lobes reach or exceed slightly the corolla sinuses.

9. Side view of a coronal scale greatly enlarged. Picture not very clear shows a raised inner lobe with dorsal surface nearly horizontal, outer lobe apex rounded. Scale not exceptionally deep with anther wing scythe shaped, all surfaces glabrous.

10. A single scale showing the dorsal slightly concaved surface, raised inner dentate lobe, with anther exceeding it.

11. Pollinarium picture taken through Bosch & Lomb microscope at 400X magnification. The measurement arrow head is 0.1 mm. long as is the distance between lines on the shaft., head is 0.5 mm. wide. very sharp focus. Enlargemnt about 82x.

Pollinarium		Translator	
length	0.39 mm. long	length	0.10 mm.
widest	0.17 mm. ca.	width	0.01 mm.

Retinaculum		Caudicle	
length	0.11 mm.	bulb diam.	0.05 mm.
shoulder	0.12 mm.		

Ret.:Pol. ratio 1:3.5

This species has a pollinarium that differs from the type and from Dr. Schlechter's drawing. In his sp. the pollinium are less than twice as long as the retinaculum, in this sp. it is over 3 times longer. The pedicels here are a little shorter, the flower diameter a little less, the calyx less linear, and here the coronal lobes are essentially horizontal, the outer lobes are not raised as in Hoya cagayanensis.

Foliage is quintuplinerved, with the second pair of nerves nearly reaching the apex, outer connecting nerves anastomosing Nervation white or lighter green than the leaf blade color.

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10.

Photo by Ann Wayman

11.

H. fitchii Kloppenburg

As H. cagayanensis in "The World Of Hoyas" A Book Of Pictures, Pg. 73

Hoya savaiiensis Kloppenburg

Hoya species collected by Dr. Art Whistler on Savaii Island, Western Samoa in 30 April 1994, in the coastal forests north of Aopo, 50 m elevation. Flowers white and sap milky.

Hoya savaiiensis Kloppenburg sp. nova Typus 9456 (HAW) hic designatus. Frutex scandens. Folia oblonga-lanceolata brevis apiculata, apicae acuto, basi rotundato, glabra, nervis pinnatim; laminis 10.0-0.5 cm x 3.5 -4.5 cm. longis et latis. Petiolo longum ca. 1 cm., glabro, supra sulcatum. Inflorescentiis umbelliformibus, pedicillii glabri, gracilis, 5 cm. longi. Sepala triangulari 0.17 cm. longo. Corolla alba 1.7 cm. lata, extus glabro, intus pubescens, sinus conduplicatus.

Photomicrographs of sheet above #9456:

1. View of the outside of the flower enlarged about 4X. The calyx lobes are very small and does not reach the corolla sinus. The pedicel is glabrous, terete, 2.4 cm. long 0.07 cm. in diameter.

2. Outside and inside view of the pedicel and calyx including the ovaries enlarged about 4X. The calyx is glabrous, apex to base 0.17 cm. long and 0.15 cm. at the widest. Sepal apex is narrowly rounded, no ligules were observed. Ovaries narrowly domed, 0.17 cm. tall, glabrous.

3. Corolla outside enlarged about 8X. Outside surface is granulose, glabrous, lobes are not deeply cut apex is acute, sinus area is very wide (conduplicate). The central collar is thickened and dark colored mouth is 0.10 cm. x 0.16 cm. and 0.06 cm. tall.

4. Outside of the corolla at the apex area enlarged about 8X. Note the wide edges of the corolla just above the sinus area which turn under (left side) and show a reddish tone here.

Sinus - sinus	0.52 cm.
Sinus - center	0.37 cm.
Sinus - apex	0.65 cm.
Apex - center	0.85 cm.
Widest	0.55 cm.

5. Inside view of the flower enlarged about 4X. Surface of the corolla is pubescent, lobes very wide above the sinus. Coronal lobes do not reach the corolla sinuses, inner lobes knife like clear to the center but anthers rise over the inner lobes. Dorsal is concave with a umbo near the inner apex and surface is longitudinally sulcate, edges sharp, outer lobe is tapered sub acute. Stiff hair cells under corona point centrally.

6. Top view of the corona scales not regular, due to pressing on herbarium sheet, enlarged about 4X. As above center raised a little.

Apex - apex	0.33 cm.
Apex - center	0.35 cm.
Widest	0.15 cm.

7. Bottom view of the corona enlarged about 4X, lobes are channeled to inward a little form the sinuses, sides diagonally sulcate. Central column, thin walled, 0.16 cm. tall.

8. Side view of a coronal scale enlarged about 8X. Inner lobe rises overtopped by the anther, back is slightly swayed. Anther wings a little scythe shaped and edges thickened.

9. View of the style's crown after inner coronal lobes and anthers are pulled back. Center raised from the pentagonal table, not rigidly structured a little mealy.

10. Enlarged about 82X

Pollinia

length	0.54 mm.
widest	0.21 mm.

Retinaculum

length	0.18 mm.
shoulders	0.12 mm.
waist	0.06 mm.
hip	0.10 mm.
extensions	0.03 mm.

11. A better view of the retinaculum enlarged as above. Translators are short and wider near the retinaculum only part of the clear caudicle on top is visible here, may have stayed on the pollinium end. Same retinaculum will yield some structural differences due to depth of focus as this is a 3 dimensional object. Note here the shoulders seem to turn up and as they go back at a lower level, they turn down. Pollinia has a clear pellucid edge from top to near the inner end and accompanied by the void area with no pollen structures present. Some pollen grains have germinated.

Description of this herbarium sheet follows:

9456 Vine with white flowers and milky sap, uncommon in the coastal forests north of Aopo, Savai'i, Western Samoa, at ca. 50 m elevation. 1 stem 3 pr. leaves and 1 flower cluster, 23 flowers. Leaves oblong, broadly elliptic, glabrous, shortly apiculate, base obtuse, pinnate nervation, reticulate anastomosing, midrib exposed below, 10-10.5 cm. x 3.5 - 4 cm. Petiole long ca. 1 cm., grooved on upper, side 2 basal glands (round, light buff). Internodes 9 - 13 cm., terete, glabrous, 0.1 - 0.2 cm. in diameter. Peduncle terete, glabrous, filiform 5 cm. long 0.08 cm. in diameter. Rachis filiform, glabrous, terete ca. 2.5 cm. long. Calyx small does not reach corolla sinuses; sepals 0.2 cm. at the most long. Corona center raised seems to reach sinus of corolla not deeply cut.

⇐⇐ Much reduced copy of the Type Sheet

Hoya smithii Kloppenburg

Hoya smithii Kloppenburg sp. nova, typus Smith 399 (UC) hic designatus. Diagnosus from the original in Sargentia (1942) 111-112. Fijian Plant Studies II. A. C. Smith. 3. as Hoya intermedia sp. nov. subsequently as Hoya carnosa. Liana, ramis crassis teretibus glabris vel apicem vel versus pallide puberulis, ramulis lateralibus brevibus 1 5 cm. longis dense foliatis; petiolis crassis (circiter 3 mm. diametro) in sicco valde rugosis 10-20 mm. longis; laminis carnosis oblongis, 8-12 cm. longis, 2-4.5 cm,. latis, basi obtusis, apice subacutis, pinnatinerviis, costa supra leviter impressa subtus prominente, nervis secundariis utrinsecus 5-7 adscendentibus saepe immersis interdum, utrinque prominulis, rete venularum immerso interdum utrinque prominulo; inflorescentiis axillaribus umbellatis, pedunculo crasso 10-15 mm. longo dense pallido puberulo glabrescente, apice ellipsoideo-capitulato interdum elongato verrucoso; bracteis deltoideis circiter 1 mm. longis acutis puberulis; floribus sub anthesi 12 25 per inflorescentiam, pedicellis gracilibus 17 30 mm. longis strigillosis (pills albidis circiter 0.5 mm. longis); calycis lobis membranaceis deltoideo lanceolatis, 3-.3.5 mm. longis, 1.8-2 mm. latis, dorso conspicue strigillosis; corolla subcarnosa rotate 16-17 mm. diametro intus copiose et conspicue sericeo puberula, lobis deltoideis 6-7 mm. longis et latis, apice acutis et saepe recurvatis, sinibus acutis; coronae lobis crassis oblongis, 4.5-5 mm. longis, 2 2.5 mm latis, apice obtusis, basi acutis vel cuspidatis, supra complanatis, subtus rotundatis et profunde sulcatis; polliniis circiter 0.7 mm. longis; carpellis glabris. Vanua Levu: Thakaundrove: Valethi, Savu Savu Bay region, alt 10 m., Smith 399 (Bish, GH, NY, Type, UC, US) (vine, in thickets; corolla white; corona pink-tinged; native name: ndraumbimbi).

In its elongate strigillose calyx-lobes, H. intermedia resembles H. australis, while in characters of its corolla and corona it seems more closely related to H. vitiensis. The new species is further distinguished from both of its allies by its habit, having short lateral foliaceous branchlets, its stout petioles, proportionately, narrower leaf blades, and larger bracts. Lobes of corona 3-5 mm. long, thick, flattened above, rounded beneath; corolla conspicuously puberulent within. Calyx lobes deltoid-lanceolate, 3 35 mm. long, dorsally conspicuously strigillose; corolla sub-fleshy, white, the sinuses acute. .....3. H. intermedia.

Translation: A vine, branches thick round glabrous or at the apex pale puberulous, lateral branches short 1 to 5 cm. long with dense leaves; petioles thick (about 3 mm. In diameter) when dry very rugose 10 to 20 mm Long; blades fleshy oblong, 8 to 12 cm. long 2 to 4.5 cm. wide, base obtuse, apex somewhat acute, penninerved, midrib above lightly impressed below prominent, secondary nerves on both sides 5 to 7 ascending often sometimes immersed, both sides prominent, vein sometimes prominent on both sides; inflorescence axillary umbellate, peduncle thick 10 to 15 mm. Long, with densely pale puberulous becoming glabrous, apex ellipsoidal-capitate sometimes elongate-warty; bracts deltoid about 1 mm. Long acute puberulous; flowers before opening 12 to 25 per inflorescence, with slender pedicels 17 to 30 mm. long with fine linear markings, (white hairs about 0.5 mm. long); calyx lobes membranous deltoid-lanceolate, 3 to 3.5 mm. long, 1.8 to 2 mm. wide, on the back conspicuous fine lines; corolla somewhat fleshy rotate 16 to 17 mm in diameter inside copiously and conspicuously silky-puberulous, lobes deltoid 6 to 7 mm. long and wide, apex and often recurved, sinus acute, lobes of the corona thick oblong, 4.5 to 5 mm. long, 2 to 2.5 mm. wide, apex obtuse, base acute or cuspidate, above flattened out, below rounded and definitely grooved; pollinia about 0.7 mm. long; carpels glabrous.

In Flora Vitiensis Nova a new flora of Fiji, 4:1988 A. C. Smith the author of Hoya intermedia published what he believed to be a mistake in the naming of this species and believed instead that this was an escape from cultivation and that it was H. carnosa.

My comments: This species is not Hoya carnosa R. Brown. The foliage as depicted in the following pictures is not H. carnosa R. Br. foliage, the calyx is different, the ovaries are also different, and most of all the pollinarium of this species is much smaller with an entirely different retinacula.

Herbarium sheet:

Hoya intermedia A.C.Smith Fiji Vanalevu Type 399 1932 Smith UC BISH A

The vein angle to the midrib is 43-55°.

Photomicrographs from the type sheet flower at (UC). Photos 1/6/1990: This species belongs in the Subsection Angusticarinata Kloppenburg.

Calyx: Sepals 0.30 cm. long. very pubescent outside, glabrous inside 0.60 cm in diameter. No ligules noticed.

1. Calyx on the back of the flower enlarged about 4X. Sepal raised by a thin sewing needle long and narrow. Surface is actually hirsute. Apex just reaches the corolla sinus.

2. Calyx outside surface enlarged about 4X. One sepal torn free. Very hirsute on this surface, lobes long triangular apices acute.

3. Inside view of the calyx enlarged about 4X. This surface is slightly cupped in the center under the ovaries (here deteriorated) This surface is glabrous but the hirsute cells show through the thin sepals.

4. Inside surface of the corolla enlarged about 4X. This surface is pubescent, flattened: it is 1.6 cm. in diameter, not cut deeply. Outside glabrous. Collar 0.03 cm. tall.

Sinus – apex	0.60 cm.
Apex – center	0.80 cm.

5. Bottom view of the corona enlarged about 8X. Underside is channeled nearly to the large thickened central column. There are narrow side lobes which end in a short bilobed at the outer apex.

6. Corona top view enlarged about 4X. The inner lobes are short appear to be spatulate; meeting in the center, outward broadened and then tapering a long way to the outer apex that is narrowly rounded and exceeded slightly by the two narrow side lobes. See how these lobes turn out on drying on the left coronal lobe. The anther wings are doubled and very broad, overlapped by coronal scale edge.

Apex – apex	0.45 cm.
Widest	0.15 cm.

7. Pollinarium enlarged about 42X.

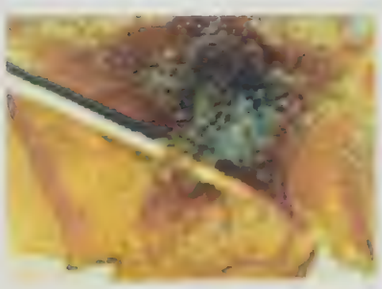
Pollinia		Translator	
length	0.55 mm.	length	0.07mm. very narrow
widest	0.20 mm.	depth	0.015 mm.

Retinacula

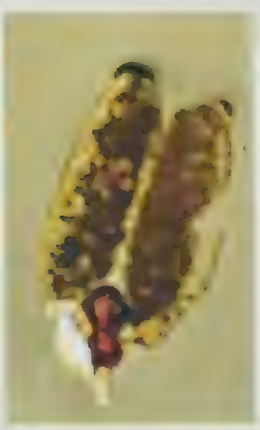
length	0.20 mm to the extensions		
shoulder	0.19 mm.	hip	0.10 mm.
waist	0.06 mm.	extensions	0.05 mm.

Caudicle bulb diameter 0.06 mm. ca.

1. **2.** **3.** **4.**



5. **6.** **7.** **8.**



Hoya intermedia A. C. Smith Isotype # 399 (BISH)

Reduced copy of the Type sheet, 309 (US). Again, this is not H. carnosa R. Brown

Hoya intermedia A. C. Smith Isotype # 399 (A)

Ted Green's 8 Favorite Hoyas

Hoya imperialis alba, from Palawan, the Philippines

I found it as an unflowered seedling growing in a crotch of a Mangrove tree. What luck!

Hoya archboldiana 'Y M Excellent', from western PNG

One of the 2 original archboldianas that I got from York Meredith about 15 years ago. Larger but less flowers than the 4148 variety, good color contrast, larger leaves,.

Hoya subcalva, from Kolombangara northern Solomons – close to where JFK's PT boat was sunk

Good color and 'Welch's Grape Juice' fragrance – what a smell!

Hoya (Eriostemma) sp Gold Star, don't know its native country

Hard texture and clear, crisp color – blooms year around for me, in the full sun

Hoya x Monette, an Ed Gilding, Eriostemma hybrid

Named after Ed's mom. Large, 3" handsome flower with pastel coloring. Resembles H. gigas.

Hoya spartiodes, from Sabah, Borneo

A real challenge to grow, very odd with no permanent leaves, only peduncles and blooms only at night.

Hoya affinis, from Guadalcanal, Solomon Islands
The dark form of the Hoya that got me started collecting hoyas, in 1963.

Hoya vitiensis 'Fiji Yellow', from Mt. Victoria, Viti Levu, Fiji
This is the one that I accidentally found while looking for H. megalantha.

ONE OF A KIND

Nothing like this has ever been attempted before! Dale Kloppenburg's wonderful text in "The World Of Hoyas" has been kept intact, while all the old black and white photocopies of herbarium sheets have been replaced by full page, full color photos of beautifully staged foliage shots with large photo insets of flower umbels that represent the particular species.

Some of the very best photographers in our organization have participated in the publishing of this book with many beautiful photographs, all labeled and correctly identified to the best of our knowledge.

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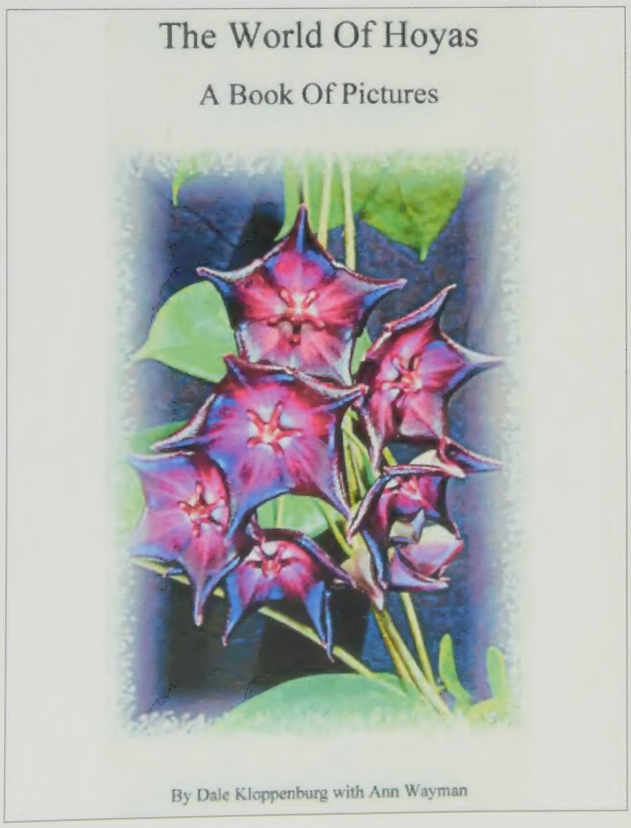

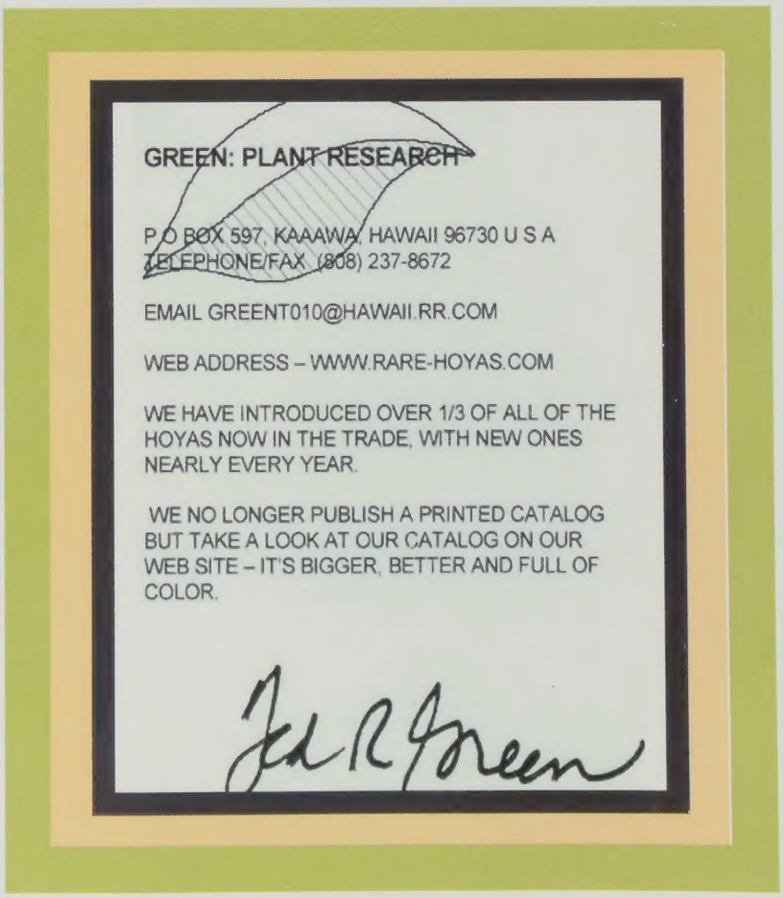
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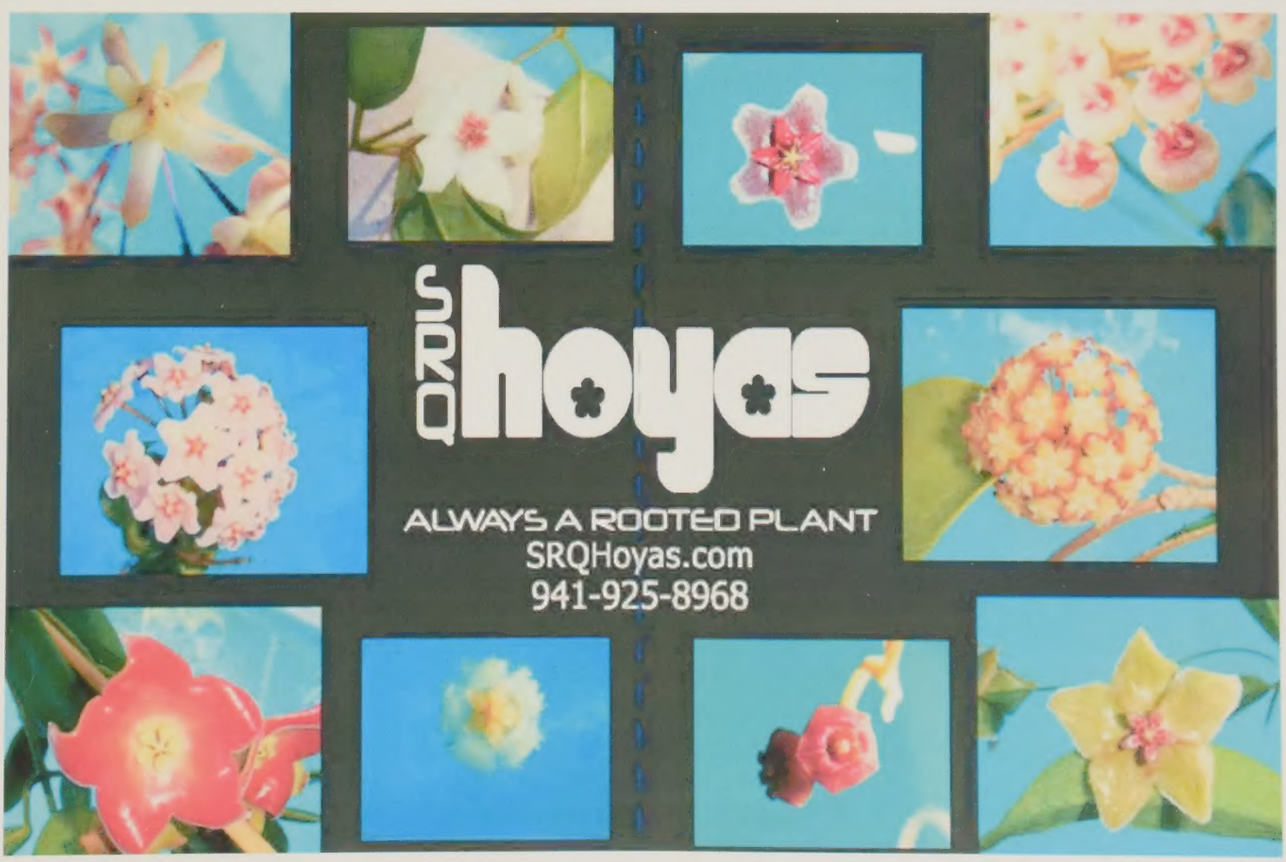

Hoya paulshirleyi T. Green & D. *Kloppenburg*

Top photo by Ann Strahm

Bottom photos left & right by Ted Green